



How the world shares ideas.

Meridian 1

X11 Release 24.0x

Software Input/Output Guide

Book 2 of 3



Meridian 1

X11 Release 24.0X

Software Input/Output Guide

Book 2 of 3

Maintenance



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MAINTENANCE
553-3001-511

Meridian 1

Software Input/Output Guide

X11 Maintenance

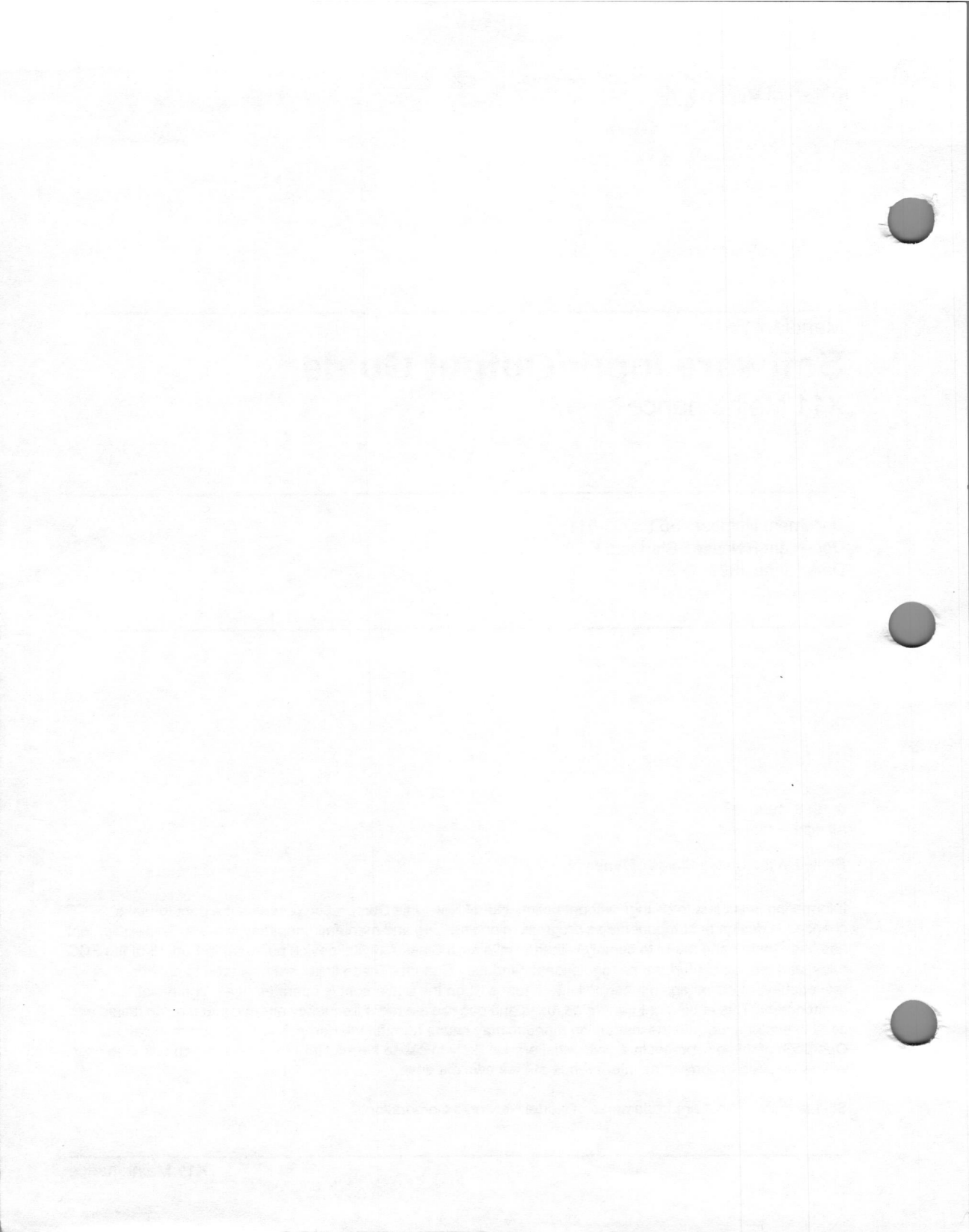
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General

This Northern Telecom Publication (NTP) documents Meridian 1 commands which may be input to:

- view and print status of switch information
- perform background tests
- disable, enable and test system hardware (e.g. a particular phone)

This NTP is applicable to Meridian 1 and Meridian SL-1 switches equipped with Generic X11 (Release 24) software.

When a data administrator loads a Maintenance overlay into memory on a Terminal, the administrator may then type in any command documented in that overlay. The Meridian 1 responds to command entries either by changing the status of hardware or by presenting information on the Terminal. (The term “overlay” is synonymous with the terms “load” and “overlay program”.)

A list of available Feature Packages appears in this NTP. An alphabetical listing (sorted by Package mnemonic) of Feature Packages can be found on page 19.

Format of 553-3001-511

This NTP presents only maintenance overlays and text supplementary to these overlays. Overlay programs are identified by LD XX or LD XXX (for Options 11C, 51C, 61C, 81 and 81C) where XX or XXX is the overlay number. Maintenance overlays are arranged in numerical order and appear in this NTP as separate modules.

Two general tables appear in each Load. The first general table is titled "*Basic commands*". It appears at the front of each load and often follows introductory text. The second general table concludes each Maintenance Load and is titled "*Alphabetical list of commands*".

The *Basic commands* Table

This table presents an abbreviated listing of that load's entire command selection. A brief description of the command is presented beside each command.

Shown below is an excerpt from a "*Basic commands*" table:

CDSP	Clears the maintenance display on active CPU to
CMIN ALL	Resets minor alarm indication on attendant consoles ...
CMIN c	Resets minor alarm indication on attendant consoles ...

Note that in a *Basic commands* table:

- a There are no column headings.
- b The list is always arranged in alphabetical order.
- c The corresponding comment is typically brief.

"*Basic commands*" tables present in less detail all entries in the "*Alphabetical list of commands*" table.

The Alphabetical list of commands Table

This table provides a more detailed description of a given command. Shown below is an excerpt from an *Alphabetical list of commands* table:

Command	Description	Pack/Rel
DISI loop c	Disable carrier c on RPE loop when idle. The number of channels still busy on the carrier may be checked using the STAT command. The message ...	rpe-1

Note that in an Alphabetical list of commands table:

- a The description is often expansive.
- b The package and release column provides the mnemonic of the package that must be equipped on the switch in order to receive this prompt. (In this example, the “rpe” package must be equipped to enter the DISI loop c command.) The number following the hyphen (“1” in this example) denotes the Release of software in which the package was made available.

Notational conventions

- 1 The TTY used for data administration should be set to UPPERCASE input since the Meridian 1 does not normally accept lowercase. However, the exceptions to this rule are:
 - Both upper and lower case input is permitted with Options 11C, 51C, 61C, 81 and 81C.
 - In LD 95, "NAME" may be entered in lowercase.
- 2 Lowercase variables are used in this book to represent many possible responses. The following table lists a few key variables which appear throughout this NTP:

Variable	Meaning
aa	Text string
aaa bbb	Alphabetic or alphanumeric characters
c	Customer Number (0-99)
c (u)	Option 11 Terminal Number (TN) Card, Unit; where unit is optional
c u	Option 11 Terminal Number (TN) Card and Unit
c 0 0 u	Terminal Number (TN) for Option 11. A TN consists of a card, two filler digits, and a unit.
dn	Directory Number (DN)
hh mm	Hours (0 - 23) and Minutes (00 - 59)
loop	Network Loop Number (0-159)
l s c (u)	Terminal Number (TN), Loop, Shelf, Card, Unit; where unit is optional
l s c u	Terminal Number (TN) (loop, shelf, card, and unit number)
mmm	Month (JAN - DEC) when used in a date.
nnn xxx	Numeric characters
xxx	Numeric value (such as a DN)
yy mm dd	Year (00 - 99), Month (1 - 12) and Day (1 - 31)

- 3 **<cr>** denotes that the carriage return key is to be depressed without inputting any data. The carriage return leaves the existing value unchanged, or enters the default value if there is no existing value.
- 4 **<space>** denotes that the space bar is to be depressed instead of **<cr>**.
- 5 **<value>** denotes a variable value, generally for a prompt response.
For example, **<NIPN>** is the value responded to the NIPN prompt and **<min>** is a minimum value.
- 6 Default values are shown in parentheses
- 7 A range of numbers is denoted by giving the lower and upper limits of the range. For example, given the range **0 - (2) - 3**, the user may manually enter 0, 1, 2, or 3, or carriage return (press **<cr>**) to enter the default of 2.
- 8 Default values are shown in brackets in the response column where applicable. Pressing **<cr>** enters the default.
- 9 Where applicable, precede an entry with an **X** to delete that entry or set your entry to default value.

Related documentation

Feature description

Feature information is provided in the *X11 Features and Services* NTP.

Operational testing

Information and instruction regarding the testing of features and services for telephone sets and attendant (ATT) consoles is contained in the *X11 Features and Services* NTP.

Administration Overlays

Information regarding Administration overlay programs is provided in NTP 553-3001-311.

Error Messages

Information is provided to interpret and respond to system error messages in NTP 553-3001-411.

Communicating with the Meridian 1

To communicate with the system, the following input/output devices at either on-site (local) or remote locations are required:

- TTY or VDT terminal as an input/output device
- RS-232-C compatible printer as an output only device
- Meridian SL-1 maintenance telephone set as an input only device

The input/output system can operate with terminals having the following characteristics:

- Interface: RS-232-C
- Code: ASCII
- Speed: 110, 300, 1200, 2400, 4800, and 9600 baud
- Loop Current: 20 mA

Accessing the Meridian 1

Logging in and out

When you access the system through a system terminal, a login procedure is required (refer to Procedure 1). All system passwords are initially set as 0000, but you can change passwords through the Configuration Record (LD 17). See also "Limited Access to Overlays" in the *X11 features and services NTP*.

Level 1 password. This general password is used in the log in sequence to provide general access to the system by service personnel. Once the system is accessed, the service personnel may then perform any necessary administration or maintenance tasks.

Level 2 password. This administrative password is known and used only by the data administration manager. The password is used to protect the system configuration record and is required when using LD 17 to change either the general or the administrative passwords.

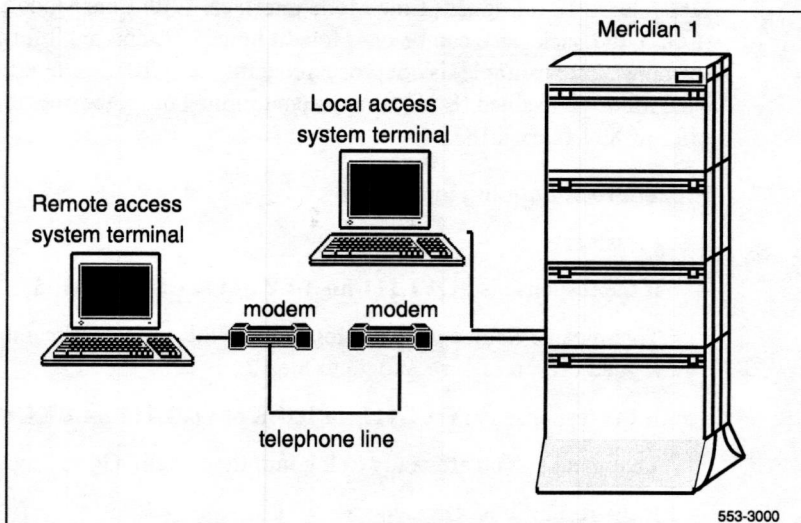
Local and remote access

Input/output terminals may operate either locally or remotely. However, data modems are required for terminals located more than 50 feet (15 meters) from the central control interface. Both local and remote terminals interface with the system through Serial Data Interface (SDI) packs.

Many devices can be installed at local and remote locations. When a system terminal is installed locally, it is connected directly to a SDI Card. When a system terminal is installed at a remote location, modems (or data sets) and a telephone line are required between the terminal and the SDI card. Figure 1 : Local and remote access to a system terminal shows typical system terminal configurations.

With X11 release 19 and later, multiple devices can simultaneously communicate with the Meridian 1 if Multi User Login is enabled. Refer to X11 system management applications (553-3001-301) for details regarding the Multi User Login Feature. Prior to Release 19, only one device at a time could interact with the Meridian 1.

Figure 1: Local and remote access to a system terminal



HOST mode access

A system terminal is connected through an SDI port. SDI ports are defined in LD 17 and may be configured for different types of outputs. For example, one terminal may be defined for traffic reports, another for maintenance messages. Two ports may be defined for the same output; however, prior to X11 release 17, both ports operate at the speed of the slowest port.

In X11 Release 17, it is possible to log in as a HOST. When in the HOST mode, the outputs defined for the port are only output to that port. Thus the port is no longer limited to the speed of the slowest port sharing the output types. This is useful for applications, such as Meridian Manager, which require high speed ports. Once the HOST port has logged out, the outputs to the other ports are restored.

To configure a system terminal, see the "System and limited access passwords" in the configuration record (LD 17). See also OVL403 and OVL404 messages, which are output to the ports affected by a HOST log in.

Line mode interface log in procedure

X11 release 18 introduces Line Mode interface. With Line Mode enabled (LON), the backspace can be used to edit input. The entered information (responses, for example) is not processed until the <CR> is entered. When the Line Mode is disabled (LOF), the system terminal interface operates as it did prior to X11 release 18.

Procedure 1: Logging in and out

1 Press <cr>

- If the response is : **OVL111 nn TTY** or **OVL111 nn SL-1**

That means: Someone else is logged into the system. When they have logged off, press <cr> and go to Step 2.

- If the response is : **OVL111 nn IDLE** or **OVL111 nn BKGD**

That means: You are ready to log into the system. Go to Step 2.

- If the response is: **OVL000 >**

That means: This is the program identifier which indicates that you are have already logged into the system. Go to Step 4.

2 Enter : **LOGI**, then press <cr>

The normal response is : **PASS?**

If there is any other response, refer to the message text in the System Error Messages NTP.

3 Enter : **Level 1** or **Level 2 password** and press <cr>.

If the password is correct, the system responds with the prompt: >

4 Load a program by entering : **LD XX** (where **XX** represents the overlay program number). For X11 release 18 and later can use LD 135 or LD 137 (LD xxx) to load an overlay program or **LD XX D**.

5 Perform tasks

6 End the program by entering : **END** or ********

7. Always end the log in session with : **LOGO**

The background routines are then loaded automatically.

Access through the maintenance telephone

A telephone functions as a maintenance telephone when you define the class-of-service as MTA (maintenance telephone allowed) in the Multi-line Telephone Administration program (LD 11). A maintenance telephone allows you to send commands to the system, but you can only use a subset of the commands that can be entered from a system terminal.

You can test tones and outpulsing through the maintenance telephone. Specific commands for those tests are given in the Tone and Digit Switch and Digitone Receiver Diagnostic (LD 34).

To access the system using the maintenance telephone, see Procedure 2. To enter commands, press the keys that correspond to the letters and numbers of the command (for example, to enter LD 42 return, key in 53#42##). Table 2 shows the translation from a keyboard to a dial pad.

The following overlays (LDs) ARE accessible from a maintenance telephone: 30, 32, 33, 34, 35, 36, 37, 38, 41, 42, 43, 45, 46, 60, 61, and 62

The following overlays (LDs) ARE NOT accessible from a maintenance telephone: 31, 40, 48, 77, 80, 92, 96, 135, 137

Note: To use the maintenance telephone, the loop for that telephone must be operating.

Table 2 : Translation from keyboard to dial pad

Keyboard				Dial pad
			1	1
A	B	C	2	2
D	E	F	3	3
G	H	I	4	4
J	K	L	5	5
M	N	O	6	6
P	R	S	7	7
T	U	V	8	8
W	X	Y	9	9
			0	0
			Space or #	#
			Return	##
			*	*
Note: There is no equivalent for Q or Z on a dial pad.				

Procedure 2: Access through the maintenance telephone

- 1 Press the prime DN key.
- 2 Place the set in maintenance mode by entering : **xxxx91**
Where: "xxxx" is the customer Special Prefix (SPRE) number. It is defined in the Customer Data Block and can be printed using LD 21. The SPRE number is typically "1" (which means you would enter 191).
- 3 Check for busy tone by entering "return" : **##**
 - If there is no busy tone, go to Step 4.
 - If there is a busy tone, a program is active. To end an active program and access the system enter : ********
- 4 Load a program by entering : **53#xx##**
Where : "xx" represents the number of the overlay program
- 5 Perform tasks.
- 6 To exit the program and return the telephone to call processing mode, enter : ********

Background routines are then loaded automatically.

Accessing Meridian Mail

Option 11 allows access to Meridian Mail Administration & Maintenance through a shared terminal on the Option 11. To access the Meridian Mail system, log in and enter: AX. To exit from Meridian Mail, press the Control key and the closed square bracket (]) simultaneously.

System memory and disk space

The following memory information is output when an administration program is loaded. This information is used to plan the addition of new features, such as speed call lists, which require memory and disk space.

NT, RT, XT, 11C, 51, 51C, 61, 61C, 71, 81, 81C systems

MEM AVAIL: (U/P): pppppp USED: qqqqqq TOT: rrrrr

or (depending on the total amount of memory)

MEM AVAIL: (U-ppppp1 P-ppppp2): USED: qqqqqq TOT: rrrrr

ST, 21, STE, 21E systems

UDATA: ppppp1 PDATA: ppppp2

X11 release 17 (for all systems)

DISK RECS AVAIL: xxxxx

Legend :

Element	Definition
ppppp1	Amount of unprotected memory available for use (in words)
ppppp2	Amount of protected memory available for use (in words)
ppppp	Total memory available for use (ppppp1 + ppppp2) (in words)
qqqqq	Total amount of memory used (in words)
rrrrr	Total amount of memory (in words)
xxxxx	Floppy disk records available for storage of additional data

Low memory and disk warnings

If the amount of memory or disk space is low, the following messages are output on the RT, NT, XT, 11C, 51, 51C, 61, 61C, 71, 81, and 81C systems.

WARNING: LOW MEMORY

WARNING: LOW DISK

WARNING: LOW MEMORY/DISK

When these messages appear, (or when the DISK RECS is less than 5, and/or the available memory is less than 1K words on the ST, STE, 21, or 21E), avoid performing further administration changes which require more memory and disk space. These changes may be lost during the next data dump.

When low memory or disk problems occur, a review of system memory is recommended. Memory may be reclaimed by removing unused features. For example, the system may have speed call lists which are no longer used and can be removed.

The low disk warning only occurs in Release 17 and later. In addition, the Speed Call List program (LD 18) has been enhanced to provide a method of computing the memory and disk requirements of new lists.

A disk record stores approximately 500 words of protected data store. The number of disk records depends on the type of floppy disk used:

- 3.5 inch high density floppy = maximum of 1425 records
- 3.5 super density = maximum of 2850 records
- 5.25 inch floppy = maximum of 1140 records

Note 1: Be sure the correct floppy type is defined. See prompts ADAN and FTYP in LD 17. This does not apply to the Option 81.

Note 2: These messages are not output after sysload until a data dump is done.

Note 3: These messages are not output for 21, 21E, ST, or STE systems. In these systems, avoid performing additional changes when disk records available is below 5, or memory available is below 1K.

System Look up Messages

On Option 11C, 51C, 61C, 81, or 81C systems equipped with System Errors and Events Lookup package 245, it is possible to display system messages on screen. System messages must first be loaded into the switch by entering ERR <cr>. Specific system messages may then be viewed on screen if the user enters the desired system error code and <cr>. The following example shows the data entries necessary to view error message: SCH946.

- 1 Login to switch
- 2 PASS (Enter only your password)
- 3 ERR <cr> (The user must type "ERR" and press return)
- 4 SCH946 <cr> (The user must type "SCH946" and press return)

The screen will now display the error message corresponding to SCH946. In this case, that message is:

Invalid User Type

Multi-User Login

Meridian 1 Multi-User Login (MULTI_USER) (package 242) enables up to three users to log in, load, and execute overlays simultaneously. These three users are in addition to an attendant console or maintenance terminal. The multi-user capability increases the efficiency of craftspersons by enabling them to perform tasks in parallel. To facilitate this operating environment, Multi-User Login includes significant functionality:

- Database conflict prevention
- Additional user commands
- TTY log files
- TTY directed I/O

With multiple overlays operating concurrently, there is the potential for a database conflict if two or more overlays attempt to modify the same data structure. Multi-User Login software prevents such conflicts. When a user requests that an overlay be loaded, the software determines if it could pose a potential conflict with an overlay that is already executing. If no conflict exists, the requested overlay is loaded. If a conflict does exist, the system issues the following message:

OVL429-OVERLAY CONFLICT

The user can try again later, or try to load a different overlay.

Multi-User Login also introduces several new user commands. With these commands, the user has the ability to:

- communicate with other users
- determine who is logged into the system
- halt and resume background and midnight routines
- initiate and terminate terminal monitoring
- change printer output assignment

Changes for X11 release 22

Prior to X11 release 22, the number of Meridian 1 users allowed to login at the same time was three. For X11 release 22, this number is increased to five. A second change has also occurred in X11 release 22. Multiuser capability is now extended to LD 2 and LD 87.

User commands

A user can issue any of the commands listed and described in Table 3, "New user commands," on page 17 at the > prompt (after login but with no overlay executing), or from within an overlay. To issue a command from within an overlay, precede the command with an exclamation point (!).

For example, to issue the WHO command from within an overlay, type:

!WHO

Table 3
New user commands

Command	Description
WHO	Displays user name, port ID, and overlay loaded for each logged-in terminal, as well as the user's MON and SPRT commands (see below).
SEND xx	Sends a message to logged-in terminal xx. When the system responds with a " SEND MSG: " prompt, enter the message text yy...yy (up to 80 characters). The text of a message is considered private and therefore is not written to any log file.
SEND ALL	Sends a message to all logged-in terminals. When the system responds with a " SEND MSG: " prompt, enter the message text yy...yy (up to 80 characters). The text of a message is considered private and therefore is not written to any log file.
SEND OFF	Prevents messages sent by other terminals from appearing at the user's terminal.
SEND ON	Enables messages sent by other terminals to appear at the user's terminal.
FORC xx	Forces terminal xx to log off (the requesting user must log in with LAPW or a level 2 password).
HALT	Stops background and midnight routines during a login session.
HALT OFF	Resumes halted background and midnight routines.
MON xx	Initiates monitoring for terminal xx (the requesting user must log in with LAPW or a level 2 password). The monitored terminal receives a message at the beginning and end of the monitored period.
MON OFF	Turns off the monitor function.
SPRT xx	Assigns printer output to port xx.
SPRT OFF	Resets printer output assignment.

For more information on Multi-User Login, consult the *Management Applications* NTP.

Maintenance display codes

Maintenance displays are located on the faceplate of certain circuit cards. A maintenance display code is a one-, two-, or three-digit alphanumeric code which can indicate the status of the system and identify faulty equipment. For a detailed definition of these codes, see the section titled "HEX" in the System Error Messages NTP.

Time and date of fault

The system identifies the time that faults are detected. When a diagnostic message is output, a timestamp is output within 15 minutes. The format is:

TIMxxx hh:mm dd/mm/yy CPU x

Where: **xxx** is the system ID

The time, date, and system ID are set in LD 2.

Alphabetical List of Packages

Listed below is a comprehensive alphabetical list of packages which may be equipped on your Meridian 1.

Mnemonic	Feature Name	Number	Release
AA	Attendant Administration	54	1
AAA	Attendant Alternative Answering	174	15
AAB	Automatic Answerback	47	1
ABCD	16-Button Digitone/Multifrequency Telephone	144	14
ACDA	Automatic Call Distribution, Package A	45	1
ACDB	Automatic Call Distribution, Package B	41	1
ACDC	Automatic Call Distribution Package C	42	1
ACDD	Automatic Call Distribution Package D	50	2
ACLI	Analog Calling Line Identification	349	24
ACNT	Automatic Call Distribution, Account Code	155	13
ACRL	AC15 Recall	236	20
ADMINSET	Set Based Administration	256	21
ADSP	ACD Night Call Forward without Disconnect Supervision	289	23
AFNA	Attendant Forward No Answer	134	14
AINS	Automatic Installation (Option 11 only)	200	16
AIOD	Automatic ID of Outward Dialing	3	1
ALRM_FILTER	Alarm Filtering	243	19
AMP	Automated Modem Pooling	78	5
ANI	Automatic Number Identification	12	1
ANIR	ANI Route Selection	13	1
AOP	Attendant Overflow Position	56	1
APL	Auxiliary Processor Link	109	10

Mnemonic	Feature Name	Number	Release
ARDL	Automatic Redial	304	22
ARFW	Attendant Remote Call Forward	253	20
ARIE	Aries Digital Sets	170	14
ATM	Automatic Trunk Maintenance	84	7
ATX	Autodial Tandem Transfer	258	20
AUXS	Automatic Call Distribution Package D, Auxiliary Security	114	12
AWU	Automatic Wake-Up	102	10
BACD	Basic Automatic Call Distribution	40	1
BARS	Basic Alternate Route Selection	57	1
BASIC	Basic Call Processing	0	1
BAUT	Basic Authorization Code	25	1
BGD	Background Terminal	99	10
BKI	Attendant Break-In/Trunk Offer	127	1
BQUE	Basic Queuing	28	1
BRI	Basic Rate Interface	216	18
BRIL	BRI line application	235	18
BRIT	ISDN BRI Trunk Access	233	18
BRTE	Basic Routing	14	1
BTD	Busy Tone Detection Tone	294	21
CAB	Charge Account/Authorization Code	24	1
CALL ID	Call ID (for AML applications)	247	19
CASM	Centralized Attendant Services (Main)	26	1
CASR	Centralized Attendant Services (Remote)	27	1
CBC	Call-by-Call Service	117	13
CCB	Collect Call Blocking	290	21
CCDR	Calling line Identification in Call Detail Recording	118	13
CCOS	Controlled Class Of Service	81	7
CDP	Coordinated Dialing Plan	59	1
CDR	Call Detail Recording	4	1
CDRE	Call Detail Recording Expansion (7 digit)	151	13
CDRQ	ACD CDR Queue Record	83	3
CDRX	Call Detail Recording Enhancement	259	20
CHG	Charge Account for CDR	23	1
CHINA	China Attendant Monitor Package	285	21

Mnemonic	Feature Name	Number	Release
CHTL	China Toll Package	292	21
CISMFS	Commonwealth of Independent States Multifrequency Shuttle Signalling	326	23
CIST	Commonwealth of Independent States - Trunk	221	21
CLNK	Call Detail Recording, Data Link	6	1
CMAC	N/W Communications Management Center	30	1
CNAME	Calling Name Delivery	333	23
CNUMB	Calling Number Delivery	332	23
COOP	Console Operations	169	14
CORENET	Core Network Module	299	21
CPCI	Called Party Control on Internal Calls	310	22
CPGS	Console Presentation Group	172	15
CPIO	Call Processor Input/Output (Option 81)	298	21
CPND	Calling Party Name Display	95	10
CPP	Calling Party Privacy	301	21
CPRK	Call Park	33	2
CPRKNET	Call Park Networkwide	306	22
CSL	Command Status Link	77	8
CSLA	CSL with Alpha Signalling	85	8
CTY	Call Detail Recording on Teletype Terminal	5	1
CUST	Multiple-Customer Operation	2	1
CWNT	Call Waiting Notification (Meridian 911)	225	19
DASS2	Digital Access Signaling System 2	124	16
DBA	Data Buffering and Access	351	24
DCON	M2250 Attendant Console	140	15
DCP	Directed Call Pickup	115	12
DDSP	Digit Display	19	1
DHLD	Deluxe Hold	71	4
DI	Dial Intercom	21	1
DISA	Direct Inward System Access	22	1
DKS	Digit Key Signaling	180	1
DLDN	Departmental Listed Directory Number	76	5
DLT2	M2317 Digital Sets	91	9
DMWI	DPNSSI Message Waiting Indication	325	23
DNDG	Do-Not-Disturb, Group	16	1

Mnemonic	Feature Name	Number	Release
DNDI	Do-Not-Disturb, Individual	9	1
DNIS	Dialed Number Identification System	98	10
DNWK	DPNSS Network Services	231	16
DNXP	Directory Number Expansion (7 Digit)	150	13
DPNA	Direct Private Network Access	250	21
DPNSS189I	Enhanced DPNSS1 Gateway	284	20
DPNSS	Digital Private Network Signaling System 1	123	16
DPNSS_ES	DPNSS Enhanced Services	288	21
DRNG	Distinctive Ringing	74	4/9
DSET	M2000 Digital Sets	88	7
DTI2	2 Mbit Digital Trunk Interface	129	10
DTD	Dial Tone Detector	138	10
DTOT	DID to Tie (Japan only)	176	16
EAR	Enhanced ACD Routing	214	17
ECCS	Enhanced Controlled Class of Service	173	15
ECT	Enhanced Call Trace	215	18
EDRG	Executive Distinctive Ringing	185	16
EES	End-To-End Signaling	10	1
EMUS	Enhanced Music	119	12
ENS	Enhanced Night Service	133	20
EOVF	ACD Enhanced Overflow	178	15
ESA	Emergency Services Access	329	23
ESA_CLMP	Emergency Services Access Calling Number Mapping	331	23
ESA_SUPP	Emergency Services Access Supplementary	330	23
ETSI_SS	Euro Supplementary service	323	22
EURO	Euro ISDN	261	20
FAXS	HiMail Fax Server	195	18
FCC68	FCC Compliance for DID Answer Supervision	223	17
FCA	Forced Charge Account	52	1
FCBQ	Flexible Call Back Queuing	61	1
FCDR	New Format CDR	234	18
FDID	Flexible DID	362	24
FFC	Flexible Feature Codes	139	15
FGD	Feature Group D	158	17

Mnemonic	Feature Name	Number	Release
FNPN	Flexible Numbering Plan	160	14
FRTA	French Type Approval	197	15
FTC	Flexible Tones and Cadences	125	16
FFCSF	Boss Secretary Filtering (FFC activation)	198	15
FTDS	Fast Tone and Digit Switch	87	7
GCM	General Call Monitor	344	24
GRP	Group Call	48	1
GPRI	International 1.5/2.0 Mb/s Gateway	167	18
GSCM	Global Call Monitoring	344	24
HIST	History File	55	1
HOSP	Hospitality Management	166	16
HOT	Enhanced Hot Line	70	4/10
HSE	Hospitality Screen Enhancement	208	17
HVS	Meridian Hospitality Voice Service	179	16
IAP3P	Integrated Services Digital Network Application Module Link for Third Party Vendors	153	13
ICDR	Internal CDR	108	10
ICP	Intercept Computer Interface	143	10
IDA	Integrated Digital Access	122	16
IDC	Incoming DID Digit Conversion	113	12
IEC	Inter-Exchange Carrier	149	13
IMS	Integrated Message System UST and UMG are part of IMS Package.	35	2
INBD	International nB+D	255	20
INTR	Intercept Treatment	11	1
IPRA	International Primary Rate Access	202	15
ISDN	Integrated Services Digital Network	145	13
ISDN INTL SUP	ISDN Supplementary Features	161	14
ISL	ISDN signaling Link	147	13
ISPC	ISDN Semi-Permanent Connection	313	22
IVR	Hold in Queue for IVR	218	18
JDMI	Japan Digital Multiplex Interface	136	14
JPN	Japan Central Office Trunks	97	9
JTDS	Japan Tone and Digit Switch	171	14
JTTC	Japan Telecommunication Technology Committee	335	23

Mnemonic	Feature Name	Number	Release
KD3	Spanish KD3 DID/DOD interface	252	20
LAPW	Limited Access to Overlays	164	16
L1MF	X08 to X11 Gateway	188	15
LLC	Line Load Control	105	10
LMAN	Automatic Call Distribution Load Management (C2)	43	1
LNK	ACDD, Auxiliary Link Processor	51	2
LNR	Last Number Redial	90	8
LSCM	Local Steering Code Modifications	137	10
LSEL	Automatic Line Selection	72	4
MAID	Maid Identification	210	17
MASTER	Euro ISDN Trunk - Network Side	309	22
MAT	MAT 5.0	296	22
MC32	Meridian Companion Enhanced Capacity	350	24
MCBQ	Network callback Queuing	38	2
MCDR	Mini CDR	31	1
MCMO	Meridian 1 Companion Option	240	19
MCT	Malicious Call Trace	107	10
MEET	MCDN End to End Transparency	348	24
MFC	Multifrequency Compelled Signaling	128	9
MFE	Multifrequency Signaling for Socotel	135	10
MINT	Message Intercept	163	15
MLIO	Multi-Language I/O Package	211	16
MLM	Meridian Link Modular Server	209	16
MLMS: Brazilian	Brazilian	264	20
MLMS: Chinese (PRC)	Chinese (PRC)	265	20
MLMS: Chinese (ROC)	Chinese (ROC)	266	20
MLMS: Dainish	Dainish	267	20
MLMS: Dutch	Dutch	268	20
MLMS: Finnish	Finnish	269	20
MLMS: Canadian French	Canadian French	270	20
MLMS: European French	European French	271	20

Mnemonic	Feature Name	Number	Release
MLMS: German	German	272	20
MLMS: Italian	Italian	273	20
MLMS: Japanese	Japanese	274	20
MLMS: Korean	Korean	275	20
MLMS: Norwegian	Norwegian	276	20
MLMS: Russian	Russian	277	20
MLMS: European Spanish	European Spanish	278	20
MLMS: Latin Am. Spanish	Latin American Spanish	279	20
MLMS: Swedish	Swedish	280	20
MLWU	Multi-Language Wake Up	206	16
MMO	M1 Microcellular Option	303	22
MMSN	M1 Mobility Multi-Site Networking	314	22
MPH	Meridian 1 Packet Handler	248	19
MPO	Multi-Party Operations	141	20
MOSR	Mobility Server	302	22
MQA	Multiple Queue Assignment	297	21
MR	PPM/Message Registration	101	10
MSB	Make Set Busy	17	1
MSDL	Multipurpose Serial Data Link	222	18
MSDL SDI	MSDL Serial Data Interface	227	19
MSDL STA	MSDL Single Terminal Access	228	19
MULTI_USER	Multi-User Login	242	19
MUS	Music	44	1
MUSBRD	Music Broadcast	328	23
MWC	Message Waiting Center	46	1
MWI	Message Waiting Indication Interworking with DMS	219	19
M911	Meridian 911	224	19
NACD	Network Automatic Call Distribution	207	15
NARS	Network Alternate Route Selection	58	1
NAS	Network Attendant Service	159	20
NAUT	Network Authorization Code	63	1
NCOS	Network Class Of Service	32	1
NFCR	New Flexible Code Restriction	49	2

Mnemonic	Feature Name	Number	Release
NGCC	Nortel Symposium Call Center	311	22
NGEN	Next Generation Connectivity	324	22
NI2	North America National ISDN Class II Equipment	291	21
NI-2 CBC	NI-2 Call By Call Service Selection	334	23
NMCE	NGenR2/Meridian Communications Exchange Connectivity	364	24
NMS	Network Message Services	175	16
NSC	Network Speed Call	39	2
NSIG	Network Signaling	37	2
NTRF	Network Traffic Measurements	29	1
NTWK	Advanced ISDN Network Services	148	13
NXFR	Network Call Transfer	67	3
ODAS	Office Data Administration System	20	1
OHOL	On Hold On Loudspeaker	196	20
OHQ	Off-Hook Queuing	62	1
OOD	Optional Outpulsing Delay	79	5
OPAO	Outpulsing, asterisk (*) and octothorpe (#)	104	
OPCB	Operator Call Back (China #1)	126	14
OPEN ALARM	Open Alarms	315	22
OPTF	Optional Features	1	1
ORC_RVQ	Remote Virtual Queueing	192	18
OVLP	Overlap Signaling (M1 to M1 and M1 to 1TR6 CO)	184	15
PAGENET	Call Page Networkwide	307	22
PAGT	Automatic Call Distribution, Priority Agent	116	12
PBXI	1.5 Mbit Digital Trunk Interface	75	5
PEMD	Pulsed E&M (Indonesia, French Colisée)	232	18
PHTN	Phantom TN	254	20
PLDN	Group Hunt/DN Access to SCL	120	15
PLUGIN	Plug-In	366	24
PMSI	Property Management System Interface	103	10
POVR	Priority Override/Forced Camp-On	186	20
PQUE	Network Priority Queuing	60	1
PRA	International Primary Rate Access (CO)	146	13
PRI2	2.0 Mb/s Primary Rate Interface	154	14
PXLT	Pretranslation	92	8

Mnemonic	Feature Name	Number	Release
QSIG	Q reference signaling point Interface	263	20
QSIG GF	QSIG Generic Functional protocol	305	22
QSIG SS	QSIG Supplementary service	316	22
RAN	Recorded Announcement	7	1
RANBRD	Recorded Announcement Broadcast	327	23
RCK	Ringing Change Key	193	15
REMOTE_IPE	Remote IPE	286	
RMS	Room Status	100	10
ROA	Recorded Overflow Announcement	36	2
RPA	Radio Paging	187	15
RPE1.5	1.5 Mbit Remote Peripheral Equipment	15	1
RPE2	2.0 Mb/s Remote Peripheral Equipment	165	15
RSDB	Resident Debug	82	9
RUSCM	Russian Call Monitoring	353	24
RVQ	Remote Virtual Queuing	192	18
SACP	Semi-Automatic Camp-On	181	15
SAMM	Stand-alone Meridian Mail	262	20
SAR	Scheduled Access Restrictions	162	20
SCC	Tone Detector Special Common Carrier	66	7
SCDR	Station Activity Records	251	20
SCI	Station Category Indication	80	7
SCMP	Station Camp-On	121	20
SECL	Series Call	191	15
SLP	Station Loop Preemption	106	10
SLST	Meridian SL-1 ST Package	96	9
SMS	Short Message Service	346	24
SNR	Stored Number Redial	64	3
SR	Set Relocation	53	1
SSAU	Station Specific Authorization Codes	229	19
SS5	500 Set Dial Access to Features	73	4
SS25	2500 Set Features	18	1
SSC	System Speed Call	34	2
STA	Single Term Access	228	19
SUPP	International Supplementary Features	131	9

Mnemonic	Feature Name	Number	Release
SUPV	Supervisory Attendant Console	93	8
SVCT	Supervisory Console Tones	189	20
SYS_MSG_LKUP	System Errors and Events Lookup	245	19
TAD	Time and Date	8	1
TAT	Trunk AntiTromboning	293	21
TATO	Trunk AntiTromboning	312	
TBAR	Trunk Barring	132	20
TDET	Tone Detector	65	7
TENS	Multiple-Tenant Service	86	7
TFM	Trunk Failure Monitor	182	15
THF	Trunk Hook Flash (Centrex)	157	14
TMON	Traffic Monitoring	168	
TOF	Automatic Call Distribution, Timed Overflow Queuing	111	10
TSET	M3000 Digital Sets	89	7
TVS	Trunk Verification from Station	110	9.32
TWR1	Tiawan R1	347	24
UIGW	Universal ISDN Gateways	283	20
UK	United Kingdom	190	16
UWIN	Universal Wireless Interactive Networking	345	24
VAWU	VIP Auto Wake Up	212	17
VMBA	Voice Mailbox Administration	246	19
VNS	Virtual Network Services	183	16
XCT0	M1 Enhanced Conference, TDS and MFS	204	15
XCT1	M1 Superloop Administration (LD 97)	205	15
XPE	Meridian 1 XPE	203	15

Overlay Loader and Multi-User Login

Overlay loader

The Overlay loader becomes active after the login sequence and password, it will then accept input commands from the Serial Data Interface Terminals (SDI) after the ">" prompt (after login but with no overlay executing).

Overlay loader commands (OVL) C-Type Processors

In the system options 51C, 61C, 81 and 81C, the operation of the Overlay loader commands are as follows:

Command	Description
ERR	Display the last error message given. Only available on systems with System Errors and Events Lookup package 245 equipped.
ERR x..x	Specific system messages are displayed (package 245 required). Where: x..x = specific error type and number (ex. ERR SCH1001)
LD xxx	Load overlay program into the overlay area, then the loaded program assumes control. Where: xxx = number of the desired overlay program.
LOF	Disable Line Mode interface (TTY setup: 7 data bits, space parity, 1 stop bit).
LOGO	Exit overlay loader and Log-off the system.
LON	Enable Line Mode interface (TTY setup: 7 data bits, space parity, 1 stop bit).
****	Aborts the current overlay program, allowing another overlay program to be loaded into the overlay area.

Overlay loader commands (OVL) Omega Processors

A set of instructions or program used to load the nonresident programs, from tape or disk. The overlay loader becomes active after the login sequence and password. It will then accept the following commands from the Serial Data Interface terminal:

Command	Description
DIST	Disable the tape interface or the MSI, FDU, MDU card.
ENLT	Enable the tape interface or the MSI, FDU, MDU card.
LD xx	Load overlay programs from tape, disk or cache memory into the overlay area, then the loaded program assumes control. Where: xx = number of the desired overlay.
LD xx D	Load overlay programs from disk into the overlay area, even if the program resides in cache memory. Where: <ul style="list-style-type: none">• xx = number of the desired overlay.• D = entered as part of command to specify the active disk.
LOGO	Exit overlay loader and Log-off the system.
STAT	Print the status of the tape interface or the MSI, FDU, MDU card.
****	Aborts the current overlay program, allowing another overlay program to be loaded into the overlay area.

Multi-User Login commands

Multi-User Login enables up to three users to log in, load, and execute overlay programs simultaneously. These three users are in addition to an attendant console or maintenance terminal. The Multi-User capability also introduces several user commands. With these commands, the user has the ability to:

- determine who is logged into the system
- communicate with other connected users
- halt and resume background and midnight routines
- initiate and terminate terminal monitoring
- change printer output assignment

Changes for X11 release 22 and later

Prior to X11 release 22, the number of Meridian 1 users allowed to login at the same time was three. For X11 release 22, this number is increased to five. A second change has also occurred in X11 release 22. Multiuser capability is now extended to LD 2 and LD 87.

Multi-User commands

A user can issue any of the commands listed in the following table from Overlay loader or from within an overlay. Precede the command with an exclamation point (!) to issue a command from within an overlay.

For example, to issue the WHO command from within an overlay, type:

!

>WHO

> <CR> takes user back to current overlay

Table 4
Multi-User commands

Command	Description
WHO	Displays user name, port ID, and overlay loaded for each logged-in terminal, as well as the user's MON and SPRT commands (see below).
SEND xx	Sends a message to logged-in terminal xx. When the system responds with a "SEND MSG: " prompt, enter the message text yy...yy (up to 80 characters). The text of a message is considered private and therefore is not written to any log file.
SEND ALL	Sends a message to all logged-in terminals. When the system responds with a "SEND MSG: " prompt, enter the message text yy...yy (up to 80 characters). The text of a message is considered private and therefore is not written to any log file.
SEND OFF	Prevents messages sent by other terminals from appearing at the user's terminal.
SEND ON	Enables messages sent by other terminals to appear at the user's terminal.
FORC xx	Forces terminal xx to log off (the requesting user must log in with LAPW or a level 2 password).
HALT	Stops background and midnight routines during a login session.
HALT OFF	Resumes halted background and midnight routines.
MON xx	Initiates monitoring for terminal xx (the requesting user must log in with LAPW or a level 2 password). The monitored terminal receives a message at the beginning and end of the monitored period.
MON OFF	Turns off the monitor function.
SPRT xx	Assigns printer output to port xx.
SPRT OFF	Resets printer output assignment.

Note: For complete feature information on Multi-User Login, consult the *Management Applications* NTP.

LD 01: Template audit

Templates are used to store data which is common to many telephones. This includes items such as key functions and Class of Service. The Template Audit program saves protected memory by eliminating unused or duplicate telephone templates.

LD 1 also performs the following consistency checks.

User Count Scan

All telephones in the system are scanned to find the total number of users for a template.

If a template is found to have no users, the entire template is removed with the warning message 'NO USERS FOUND'. If a template is found to have an incorrect user count, the correct user count is written to the template, and the warning message 'USER COUNT LOW' or 'USER COUNT HIGH' is output. If the user count is accurate, the message 'USER COUNT OK' is output.

Duplicate Template Scan

Each template is checked against every other template for possible duplication. A template is considered a duplicate of another if all of the following conditions are met:

- the checksums are the same
- the template lengths and the hunt offsets are the same
- all template entries are the same

If a match is found, the warning message 'DUPLICATE OF xxxx' is output. A scan is then initiated to locate all users of the current template and move them to the matched template.

For each of these users found, the template number in the telephone data block and the user count is updated. After all of the users of the current template are moved to the matched template, the current template is removed.

Template Checksum Audit

A checksum is a binary sum of the template length, hunt offset, and template entries. The checksum is calculated for each template and compared with the existing template checksum. If the existing checksum is correct, the message 'CHECKSUM OK' is output. Otherwise, the checksum is corrected with the warning message 'CHECKSUM WRONG'.

Key Lamp Strip Audit

Two checks are made to correct Key Lamp Strip (KLS) corruption. First, the template length is compared to the number of KLS indicated in the protected line block. The second check verifies that the last word of the template reflects a 'NULL' key.

If these checks detect any discrepancies, they are corrected with the warning message 'CORRUPTED KLS'.

These corrections alter the checksum of the template. This is identified and corrected by the checksum audit.

Operating parameters

Due to the Real Time impact of this program and the large amount of data being scanned, the template audit should be run during low traffic hours.

The template audit should not be aborted unless it is critically necessary. If it does become necessary to interrupt execution of the audit, be aware that the templates may be corrupted.

If a system initialization occurs during the template audit, the program is automatically aborted. It should be restarted as soon as possible after this occurs.

The audit printout only appears on the TTY that requested the template audit program run.

Template Audit cannot be run as a background task.

To confirm that extraneous templates have been removed and that all counts have been corrected to their proper value, re-run the audit program.

A datadump (LD 43) should be run after a template audit is executed.

Sample operation

The audit begins when the program (LD 1) is loaded. All templates are scanned in the following sequence, beginning with template one:

- 1 Single line telephones
- 2 Multi-line telephones

Following is an example of the system information which is generated during a Template Audit:

```
TEMPLATE AUDIT
STARTING PBX TEMPLATE SCAN
TEMPLATE 0001 USER COUNT LOW    CHECKSUM OK
TEMPLATE 0002 USER COUNT HIGH   CHECKSUM OK
TEMPLATE 0003 NO USERS FOUND
      .
      .
      .
STARTING SLI TEMPLATE SCAN
TEMPLATE 0001 USER COUNT OK     CHECKSUM OK
      .
      .
      .
TEMPLATE 0067 USER COUNT OK     CHECKSUM WRONG
TEMPLATE 0068 USER COUNT OK     CHECKSUM OK DUPLICATE
OF 0014
      .
TEMPLATE 0082 USER COUNT OK     CHECKSUM OK
      .
TEMPLATE 0120 USER COUNT OK
TEMPLATE AUDIT COMPLETE
```

Note: The report does not print out that template inconsistencies have been corrected.

LD 30: Network and Signaling Diagnostic

This program is used to maintain Network loops. It may be run in background, loaded during the daily routines or loaded manually to enter commands.

Program operation

When invoked automatically by the system, the program performs the following tests:

- network memory of each enabled network card
- continuity of the speech path to each PE shelf (for enabled loops only)
- signaling channel to each line or trunk card (on enabled loops only)
- signaling channel through each Integrated Services digital line card to each Digital telephone or data TN
- clock controllers are switched (if either DTI2 or PRI2 are used when LD 30 is run in midnight mode, clock controllers will not be switched)

For the Integrated Voice Messaging System (IVMS), the program does not test Automatic Call Distribution (ACD) positions when the positions belong to IVMS-DN groups.

Digital telephones that pass the signaling test have their date and time updated to match the system clock.

Any SL-1 telephone or card that fails the signaling test may be disabled by this program. Use LD 32 to re-enable them.

If two or more PE cards are disabled on a loop, an NWS101 message is printed without the associated NWS301 messages to indicate card failures. However, the shelves that failed are known from the NWS201 messages. Therefore, the state of the individual cards can be determined by manually retesting using the SHLF command.

If NWS301 indicates a failure of the Peripheral Buffer or Controller card, the message may not be correct. Therefore the card should be retested using the SHLF command.

This program does not test attendant consoles or Automatically Identified Outward Dialing (AIOD) trunks. Equipment which has been disabled due either to overload or manual request is not tested.

On Option 11 systems, a continuity test and signaling test on the XPE shelf is performed when LD 30 is invoked automatically.

How to use LD 30

When invoked manually on systems other than Option 11, the Overlay may be used to:

- conduct a complete test, as when the program is invoked automatically, except for switching the clocks
- conduct a test on a specific PE shelf
- get the enable/disable status of network loops
- enable or disable network loops
- clear alarm indications and the maintenance display
- download peripheral software on superloops
- clear contents of the Controller maintenance display
- read contents of the Controller maintenance display

When invoked manually on an Option 11 system, the program may be used to:

- conduct a complete test, as when the program is invoked automatically, except for switching the clocks

-
- clear alarm indications and the maintenance display
 - perform a signaling test on a specific card or unit
 - perform a continuity test and signaling test on the Option 11 XPE shelf
-

Basic commands

The following commands are applicable to all machines, except Option 11 systems. See the list of Option 11 commands for further information.

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN c	Clear minor alarm indication on attendant consoles for customer c
CMIN ALL	Clear minor alarm indication on all attendant consoles
DISL loop	Disable loop
DISL sl	Disable specified superloop.
END	Abort current test
ENLL loop	Enable network loop
ENLL sl	Enable specified superloop.
LDIS	List disabled loops
LENL	List enabled loops
LOOP loop, ALL	Test network memory on one or all loops
SHLF l s	Test loop l, shelf s
STAT	Get status of all network loops
STAT (loop)	Get status of specified loops
TTSM loop x y z	Test Time Switch Memory (TSM) of a loop
TTWI loop x y z	Test TSM when the timeslot junctor is idle

Option 11 commands

The following commands are applicable to Option 11 systems:

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN c	Clear minor alarm indication on attendant consoles for customer c
CMIN ALL	Clear minor alarm indication on all attendant consoles
END	Abort current test
TEST	Perform a continuity test and signaling test on Option 11 XPE shelf
UNTT c (u)	Perform a signaling test on a specified card or unit

Superloop commands

The following commands are used with Controllers (NT8D01) and Network Cards (NT8D04 or NT8D18).

CPED I s	Clear contents of Controller maintenance display on loop I shelf s
DISL loop	Disable loop
END	Abort current test
ENLL loop (v)	Enable superloop, download peripheral software version v
LDIS	List disabled loops
LENL	List enabled loops
LOOP loop, ALL	Test network memory on one or all loops
RPED I s	Read contents of the Controller maintenance display
SHLF I s	Test loop I, shelf s
STAT	Get status of all network loops
STAT (loop)	Get status of specified loop
UNTT I s c (u)	Do a signaling test on specified card or unit

Basic Rate Interface (BRI) commands

The following commands are used with Multi-purpose ISDN Signal Processor (MISP), S/T-Interface Line (SILC), and U-Interface Line (UILC) cards.

SLFT l s c	Invoke self-test on ISDN BRI line card
SLFT l s c type	Selftest ISDN BRI line card. The card must be disabled. Response is: NWS637 selftest passed or NWS632 selftest failed. Where: l = loop, s = shelf, c = card, and type = self-test type (Long or Short)
STEI l s c d	Query the Terminal Endpoint Identifiers, and their corresponding USIDs This command queries the TEIs, and their corresponding USIDs on the specified DSL with an established D-channel data link layer with the MISP. Output looks like: MISP 111 TEI USID --- ---- nnn nnnn
SLFT loop type	Invoke self-test on MISP loop. Where: type = 1 (comprehensive test) or type = 2 (power on reset)
TEIT l s c d	Perform TEI check on Digital Subscriber Loop d (0-7)

Option 11 BRI commands

SLFT card	Invoke self-test on ISDN BRI line card.
SLFT card type	Invoke self-test on MISP card. Where: type = 1 (comprehensive test) or type = 2 (power on reset)
TEIT c d	Perform TEI check on Digital Subscriber Loop d (0-7).

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CMAJ	Clear major alarm, reset power fail transfer and clear power fault alarm.	basic-1
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	basic-1
CPED l s	Clear contents of Controller maintenance display on loop l shelf s. This also clears the buffer printed with the command RPED.	xpe-15
DISL loop	Disable loop. All calls in progress on this loop are disconnected. Peripheral cards remain software enabled and no LEDs are lit.	basic-1
DISL sl	Disable specified superloop. Active calls on the superloop specified will be disconnected and line transfer will occur at the remote end.	basic-21
END	Abort current test. If no test is in progress, message NWS002 is output.	basic-1
ENLL loop	Enable network loop. This enables the network, performs a network memory test and tests continuity and signaling to all shelves on the loop. If it passes the test, OK is output. This does not re-enable any disabled cards on the loop. Use LD 32 ENLS or ENXP commands or enable each card individually. When enabling a network loop serving ISDL cards, the ISDL cards must be individually disabled, then re-enabled to ensure that service is restored to digital telephones. Service may also be restored to digital telephones by disconnecting and then reconnecting the telephone's line cord.	basic-1

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ENLL loop (v)	Enable superloop, download peripheral software version v. If version v is not specified, the software downloaded is current (c) or latest (l) version as defined in LD 97.	xpe-15
ENLL sl	Enable specified superloop. OK is output if superloop has been enabled. Establishing service of individual voice-and-data-capable carriers is dependant on the F/W state of that carrier.	basic-21
LDIS	List disabled loops. Response is: <ul style="list-style-type: none">• 11, 12, 1n: loop is a disabled loop, or• NONE: if no cards are disabled.	basic-1
LENL	List enabled loops. Response is: <ul style="list-style-type: none">• 11, 12, 1n: l is an enabled loop, or• NONE: if no cards are enabled.	basic-1
LOOP loop, ALL	Test network memory on one or all loops. Performs a network memory test, continuity test and signaling test on the specified loop, which can be either a value from 0 to 159 or ALL. If ALL is specified, every loop currently enabled is tested. All shelves on each loop are tested (except for attendant consoles). If no errors are detected, OK is output. With X11 Release 20 and later, this command is used for XOPS cards. Out-of-Service units are not tested when this command is used. The range for units is 0-31, but only 0-7 are allowed on the XOPS card.	basic- 20
RPED l s	Read contents of the Controller maintenance display. This command lists the current and last 15 clock tracking states of the NT8D01 Controller. The tracking is indicated on the Controller maintenance display. The possible tracking modes are: C0 = Controller is tracking to the network connected to port 0. C1 = Controller is tracking to the network connected to port 1. C2 = Controller is tracking to the network connected to port 2. C3 = Controller is tracking to the network connected to port 3. CF = Controller is not tracking any network. See HEX messages for the interpretation of Controller maintenance display codes.	xpe-15

SHLF I s	<p>Test loop I, shelf s.</p> <p>Performs a network memory test, continuity test and signaling test only on loop I shelf s. All line cards, idle trunk cards (except AIOD trunks) and idle SL-1 telephones are tested. If no errors are detected, OK is output.</p> <p>With X11 Release 20 and later, this command is used for XOPS cards. Out-of-service units are not tested when this command is used.</p>	basic- 20
SLFT card	<p>Invoke self-test for ISDN BRI line card. The card must be disabled. Response is:</p> <p>NWS632 self-test failed or NWS637 self-test passed (Option 11 only)</p>	bri-18
SLFT I s c	<p>Invoke self-test for ISDN BRI line card. The card must be disabled.</p>	bri-18
SLFT I s c type	<p>Self-test ISDN BRI line card. The card must be disabled. Response is:</p> <p>NWS637 selftest passed, or NWS632 selftest failed, where:</p> <ul style="list-style-type: none"> • I = loop • s = shelf • c = card • type = self-test type (Long or Short) 	rsc/bri-19
SLFT card type	<p>Invoke self-test for MISP card on Option 11. The comprehensive test is run automatically when the MISP is enabled. The card must be disabled. Response is:</p> <p>NWS632 self-test failed, or NWS637 self-test passed</p> <p>type = 1 (comprehensive), or type = 2 (power-on-reset)</p>	bri-18
SLFT loop type		bri-18

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Invoke self-test for MISP card.

The comprehensive test is run automatically when the MISP is enabled. The card must be disabled. Response is:

NWS632 self-test failed or NWS637 self-test passed

- type = 1 (comprehensive), or
- type = 2 (power-on-reset)

STAT	<p>Gives status of network loops (circuits), indicating how many are enabled and how many are disabled.</p> <p>Response is: x ENBL, y DSBL</p>	basic-1
STAT loop	<p>Get status of a network loop.</p> <p>Response is one of the following:</p> <ol style="list-style-type: none">1. UNEQ = loop is unequipped.2. DSBL: RESPONDING = loop is disabled and the Network card is responding. The loop may have been disabled because of:<ol style="list-style-type: none">a DISL commandb associated Peripheral Signaling (PS) card is disabledc overload condition on associated loop. In this case an OVD message is output. An attempt to enable the loop may result in a recurrence of the overload.3. DSBL: NOT RESPONDING = loop is disabled and the Network card is not responding. The card is missing, disabled by the faceplate switch or is faulty.4. x BUSY, y DSBL = loop is enabled with x channels busy, y channels disabled.5. CTYF 11, 12... = loop specified in the STAT command cannot receive speech from one or more loops (11, 12). This usually indicates the LD 30 continuity test failed. Probable fault is the network card.	basic-1
STEI l s c d	<p>Query the Terminal Endpoint Identifiers, and their corresponding USIDs</p>	brsc-19

This command queries the TEIs, and their corresponding USIDs on the specified DSL with an established D-channel data link layer with the MISP. Output looks like:

```
MISP 111
      TEI      USID
      ---      ----
      nnn      nnnn
```

TEIT c d	Perform TEI check on Digital Subscriber Loop d (0-7) on Option 11.	bri-18
	This test is carried out on a single specified DSL interface. It checks the existence of the defined TEIs and any possible duplication of TEIs. Duplicate TEIs are removed by the layer 2 task on the MISP.	
TEIT l s c d	Perform TEI check on Digital Subscriber Loop d (0-7).	bri-18
	This test is carried out on a single specified DSL interface. It checks the existence of the defined TEIs and any possible duplication of TEIs. Duplicate TEIs are removed by the layer 2 task on the MISP.	
TEST	Perform a continuity test and signaling test on Option 11 XPE shelf.	basic-1
TTSM loop x y z	Test Time Switch Memory (TSM) of a loop. Tests the Time Switch Memory (TSM) of the network card. Where: loop = the network loop that may have a faulty TSM. x = the network loop of the transmitting party. y = the junctor used on the transmitting side of the call. Its value has a range of 0 to 7, unless the two loops are in the same group, in which case the junctor value to be entered is 15. z = the timeslot used on the transmitting side of the call. Its value has a range of 2 to 31. The values normally used in this command are the same values that appeared in the ERR3036 or ERR3037 message during call processing.	basic-1
TTWI loop x y z		basic-1

Test TSM when the timeslot junctors are idle. The command is usually used if error message NWS800 is output in response to TTSM.

Where:

loop = the network loop that may have a faulty TSM.

x = the loop ID (range 0 to 159) of the transmitting party.

y = the junctor used on the transmitting side of the call. Its value has a range of 0 to 7, unless the two loops are in the same group, in which case the junctor value to be entered is 15.

z = the timeslot (2-31) used on the transmitting side of the call.

This command waits for the timeslot z and junctor y to become available and will then execute the command.

UNTT c (u)	Do a signaling test on specified card or unit on Option 11	xpe- 20
------------	--	---------

UNTT l s c (u)	Do a signaling test on specified card or unit. This command applies only to superloops.	xpe- 20
----------------	---	---------

With X11 Release 20 and later, this command is used for XOPS cards. Out-of-service units are not tested when this command is used. The range for units is 0-31, but only 0-7 are allowed on the XOPS card.

Issued:	June 1999
Status:	Standard
X11 Release:	24

LD 31: Telephone and Attendant Console Diagnostic

This program tests the keys and lamps of telephone sets and attendant consoles. The tests consist of pressing keys on a telephone and checking for the correct response. This diagnostic cannot be used for testing the DISPLAYPHONE 1200, or M3000.

After loading the program, any telephone in the system may invoke the test by dialing SPRE 92, (SPRE is the Special Service Prefix Code for the customer). No further inputs from the TTY are needed. If commands are input, the system responds with TRM001 indicating an invalid command.

To start the test:

- 1 Load program 31.
- 2 Dial SPRE 92 from the telephone to be tested.
- 3 Perform the steps given in the appropriate Table. The expected responses for LCD lamps, displays and tones are given. Each key need only be operated momentarily.

The volume keys (VOL UP and VOL DOWN) have eight levels. The level is adjusted by operating a key once for a change in one level. These keys control the audible level for ring volume, buzz volume and speech/tone volume.

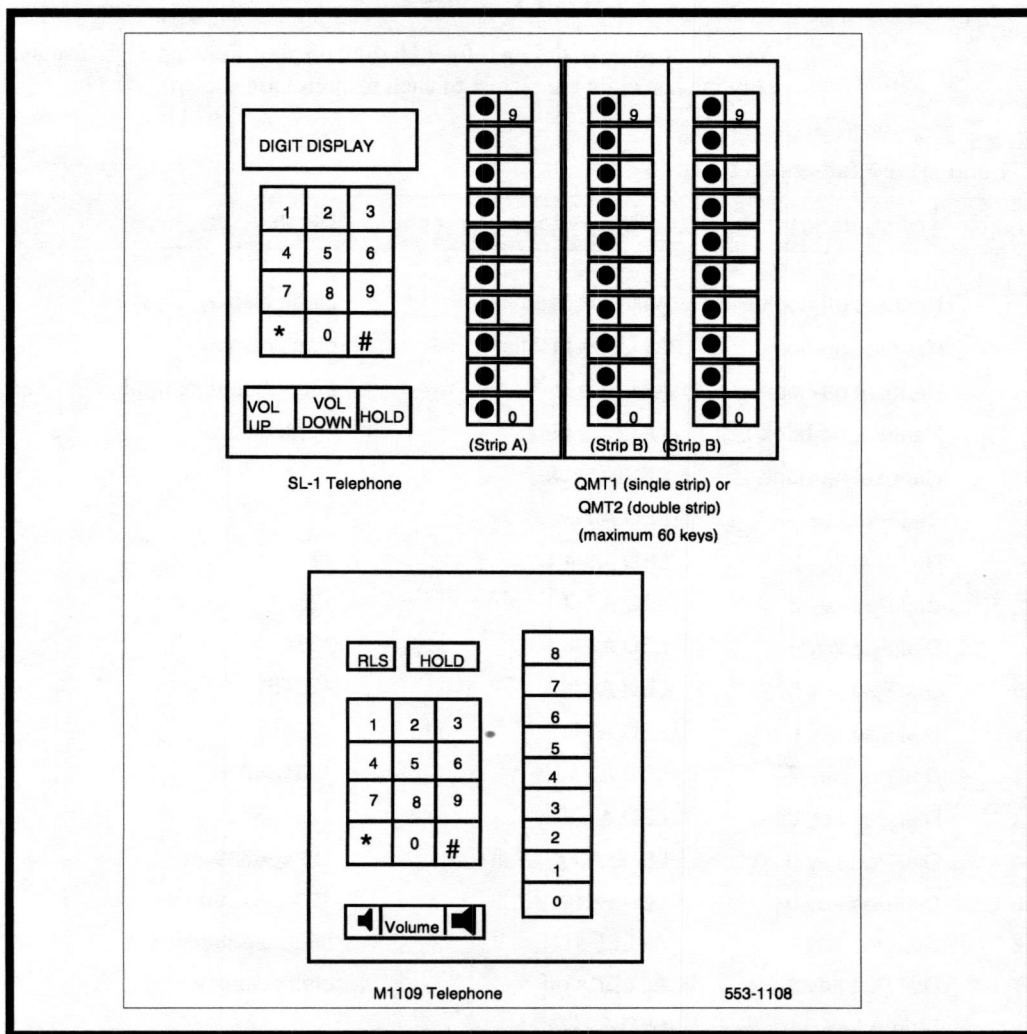
Note 1: When enabling a network loop with ISDL packs, the ISDL packs must be individually disabled and then re-enabled to restore service to digital telephones. Service may also be restored to digital telephones by disconnecting then reconnecting the telephone's line cord.

Note 2: Terminal diagnostics are provided by the M3000 itself. Refer to Meridian M3000 Description, Installation, Operation & Maintenance (553-2201-115).

SL-1 and M1109 Telephone test

The SL-1 and M1109 key and lamp layout is shown in Figure 2. The test is provided in Table 5.

Figure 2
SL-1 and M1109 Key and Lamp Layout



SL-1 and M1109 Telephone test

After dialing the SPRE code 92 the SL-1 telephone shows all LEDs lit and the display shows all 8's. For the M1109 press the "*" key first.

Note 1: If a lamp field array module exists on an SL-1 telephone, the following responses are included: * Key — All lamps on, # Key— All lamps off, Strip A Key 0 — Diagonal test pattern. (72).

Note 2: Response shown is for a 16-digit display. For an 8-digit display, only the last eight characters of each response are shown.

Table 5
SL-1 and M1109 Telephone test

Step	Key operated	LCD location and response	Display and Tones
1	Handset off-hook	All LEDs flash	blank display
2	Handset on-hook	All LEDs fast flash	blank display
3	Handset off-hook	All LEDs lit	8888888888888888
4	Handset on-hook	All LEDs off	blank display
5	Handset on-hook	All LEDs off	
6	Dial Pad key 1	LED A0 lit	1
7	Dial Pad key 2	LED A1 lit	12
8	Dial Pad key 3	LED A2 lit	123
9	Dial Pad key 4	LED A3 lit	1234
10	Dial Pad key 5	LED A4 lit	12345
11	Dial Pad key 6	LED A5 lit	123456
12	Dial Pad key 7	LED A6 lit	1234567
13	Dial Pad key 8	LED A7 lit	12345678
14	Dial Pad key 9	LEDs A0 & A7 lit	123456789
15	Dial Pad key 0	LEDs A1 & A7 lit	1234567890
16	Dial Pad key *	All LEDs lit	8888888888888888
17	Dial Pad key #	All LEDs off	blank display
18	Strip A key 0	LED A0 lit	

Table 5
SL-1 and M1109 Telephone test

Step	Key operated	LCD location and response	Display and Tones
19	Strip A key 1	LED A1 lit	
20	Strip A key 2	LED A2 lit	
21	Strip A key 3	LED A3 lit	
22	Strip A key 4	LED A4 lit	
23	Strip A key 5	LED A5 lit	
24	Strip A key 6	LED A6 lit	
25	Strip A key 7	LED A7 lit	
26	Strip A key 8	LEDs A0 & A7 lit	
27	Strip A key 9 (SL-1)	LEDs A1 & A7 lit	
28	RLS key (M1109)	LEDs A1 & A7 lit	
29	Strip B key 0	LED B0 lit	
30	Strip B key 1	LED B1 lit	
31	Strip B key 2	LED B2 lit	
32	Strip B key 3	LED B3 lit	
33	Strip B key 4	LED B4 lit	
34	Strip B key 5	LED B5 lit	
35	Strip B key 6	LED B6 lit	
36	Strip B key 7	LED B7 lit	
37	Strip B key 8	LEDs B0 & B7 lit	
38	Strip B key 9	LEDs B1 & B7 lit	
Note: If 10-key or 20-key add-on modules are equipped, repeat steps 29 to 38 for each key/lamp strip on each module before proceeding.			
39	HLD key	LEDs, A0 to A4 lit	Dial tone
40	Handset off-hook	All LEDs flash	Dial tone from handset only
41	Handset on-hook	All LEDs fast flash	Dial tone from speaker
42	Vol Up key	LEDs A5 to A7 lit	Volume up
43	Vol Down key	LEDs A5 to A7 off	Volume down

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Table 5

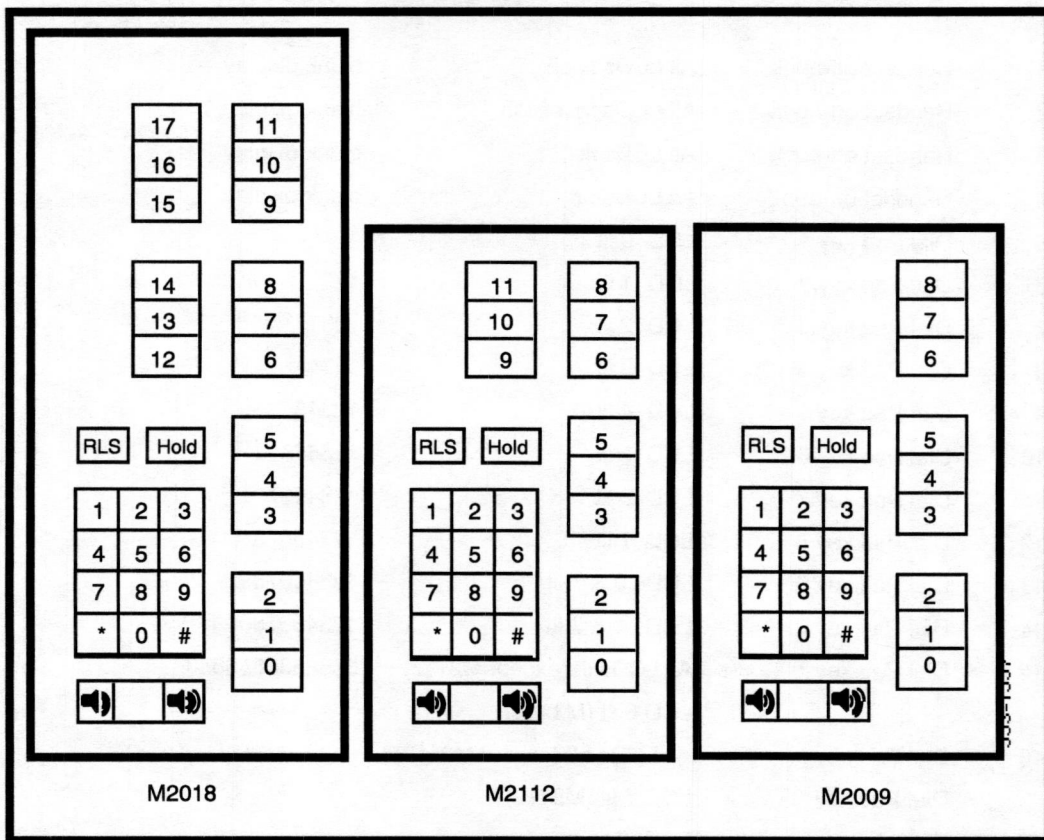
SL-1 and M1109 Telephone test

Step	Key operated	LCD location and response	Display and Tones
44	HLD key	LEDs A0 to A4 lit	Buzzer
45	HLD key	End of test	

M2009, M2018 and M2112 Telephone test

The M2000 key and lamp layout is shown in Figure 3. The test is provided in Table 6.

Figure 3
M2000 Series Digital Telephone Key and LCD Layout



M2009, M2018, and M2112 Telephone test

After dialing the SPRE code 92, the M2009 telephone shows all LEDs lit and the display shows all 8's. For the M2018 and M2112, press the "*" key first.

Table 6
M2009, M2018, and M2112 Telephone test

Step	Key operated	LCD location and response	Display and Tones
1	Handset off-hook	All LCDs flash	blank display
2	Handset on-hook	All LCDs fast flash	blank display
3	Handset off-hook	All LCDs lit	blank display
4	Handset on-hook	All LCDs off	blank display
5	Dial Pad key 1	LCD 0 lit	1
6	Dial Pad key 2	LCD 1 lit	12
7	Dial Pad key 3	LCD 2 lit	123
8	Dial Pad key 4	LCD 3 lit	1234
9	Dial Pad key 5	LCD 4 lit	12345
10	Dial Pad key 6	LCD 5 lit	123456
11	Dial Pad key 7	LCD 6 lit	1234567
12	Dial Pad key 8	LCD 7 lit	12345678
13	Dial Pad key 9	LCDs 0 & 7 lit	123456789
14	Dial Pad key 0	LCDs 1 & 7 lit	1234567890
15	Dial Pad key *	All LCDs lit (except M2112) LCD 6 lit (M2112)	8888888888888888
16	Dial Pad key # Dial Pad key *	All LCDs off (except M2112) LCD 7 lit (M2112)?	blank display
17	Fixed key 0	LCD 0 lit	
18	Fixed key 1	LCD 1 lit	
19	Fixed key 2	LCD 2 lit	
20	Fixed key 3	LCD 3 lit	
21	Fixed key 4	LCD 4 lit	

Table 6
M2009, M2018, and M2112 Telephone test

Step	Key operated	LCD location and response	Display and Tones
22	Fixed key 5	LCD 5 lit	
23	Fixed key 6	LCD 6 lit	
24	Fixed key 7	LCD 7 lit	
25	Fixed key 8	LCD 8 lit	
26	Fixed key 9	LCD 9 lit	
27	Fixed key 10	LCD 10 lit	
28	Fixed key 11	LCD 11 lit	
29	Fixed key 12	LCD 12 lit	
30	Fixed key 13	LCD 13 lit	
31	Fixed key 14	LCD 14 lit	
32	Fixed key 15	LCD 15 lit	
33	Fixed key 16	LCD 16 lit	
34	Fixed key 17	LCD 17 lit	
35	HLD key	LCDs 0 to 4 lit	Dial tone
36	Handset off-hook	all LCDs flash	Dial tone from handset only
37	Handset on-hook	all LCDs fast flash	Dial tone from speaker
38	Handsfree key	LCD 0 to 2 lit	

M2006 and M2008 Telephone test

The M2006 and M2008 faceplate is shown in Figure 4. The M2006 test is provided in Table 7. The M2008 test is provided in Table 8.

Figure 4
Meridian M2006 and M2008 set

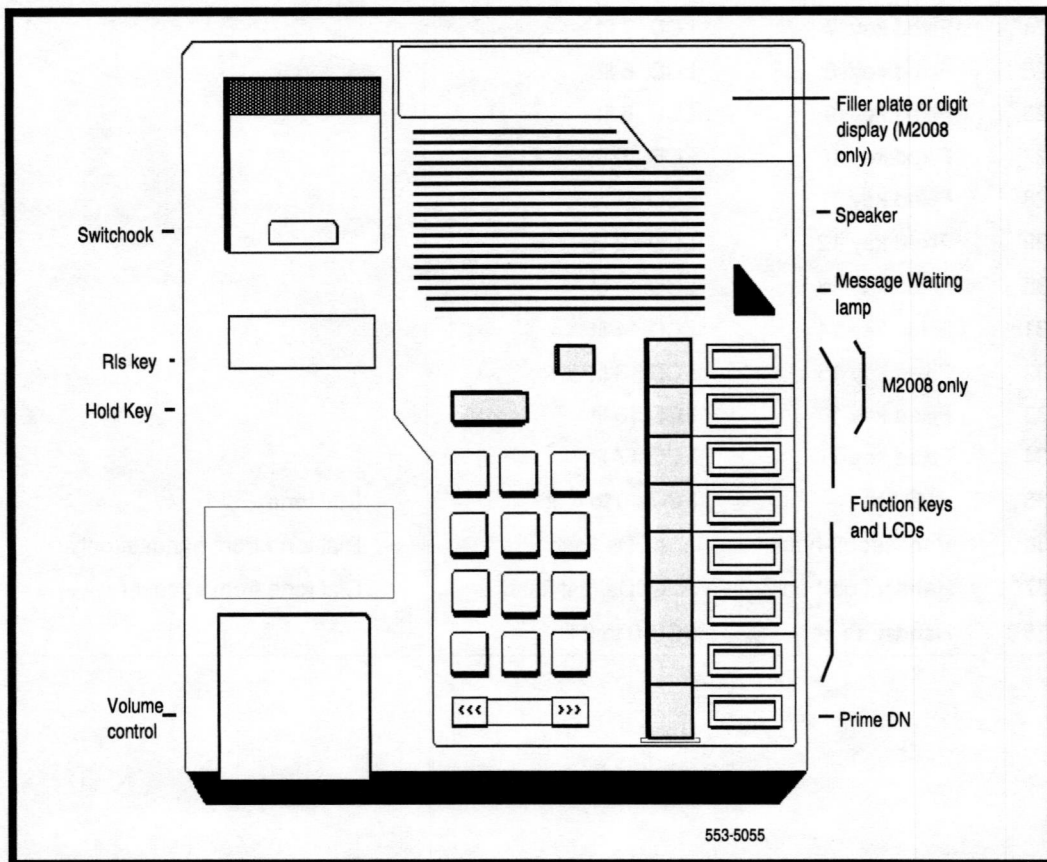


Table 7
Meridian M2006 Telephone test

Step	Key operated	LCD location and response	Display and Tones
Feature keys:			
1	Key 0	LCD 0 lit	
2	Key 1	LCD 1 lit	
3	Key 2	LCD 2 lit	
4	Key 3	LCD 3 lit	turn on Message Waiting LED
5	Key 4	LCD 4 lit	turn off Message Waiting LED
6	Key 5	LCD 5 lit, (if key 5 is not a Program key for data option)	
Keypad keys:			
7	Key 1	LCD 0 lit	
8	Key 2	LCD 1 lit	
9	Key 3	LCD 2 lit	
10	Key 4	LCD 3 lit	
11	Key 5	LCD 4 lit	
12	Key 6	LCD 0 and 4 lit	
13	Key 7	LCD 1 and 4 lit	
14	Key 8	LCD 2 and 4 lit	
15	Key 9	LCD 3 and 4 lit	
16	Key 0	LCD 1 and 4 lit	
17	Key *	all LCDs lit	
18	Key #	all LCDs off	
Fixed keys:			
19	HLD	LCD 0 to 4 lit	dial tone
20	Release	all LCDs off	
21	Off-hook	all LCDs flash	dial tone from handset only
22	On-hook	all LCDs fast flash	dial tone form speaker

Table 7
Meridian M2006 Telephone test

Step	Key operated	LCD location and response	Display and Tones
23	Off-hook	all LCDs lit	
24	On-hook	all LCDs off	
25	HLD	LCD 0 to 4 lit	buzzer
26	HLD	end of test	

Table 8
Meridian M2008 Telephone test

Step	Key operated	LCD location and response	Display and Tones
Feature keys:			
1	Key 0	LCD 0 lit	display upper case letters
2	Key 1	LCD 1 lit	display lower case letters
3	Key 2	LCD 2 lit	display clear
4	Key 3	LCD 3 lit	display darkens
5	Key 4	LCD 4 lit	top line of display darkens
6	Key 5	LCD 5 lit	turn Message Waiting LED on
7	Key 6	LCD 6 lit	turn Message Waiting LED off
8	Key 7	LCD 7 lit	
Keypad keys:			
9	Key 1	LCD 0 lit	1 on display
10	Key 2	LCD 1 lit	2 on display
11	Key 3	LCD 2 lit	3 on display
12	Key 4	LCD 3 lit	4 on display
13	Key 5	LCD 4 lit	5 on display
14	Key 6	LCD 5 lit	6 on display
15	Key 7	LCD 6 lit	7 on display
16	Key 8	LCD 0 and 6 lit	8 on display
17	Key 9	LCD 1 and 6 lit	9 on display
18	Key 0	LCD 2 and 6 lit	0 on display
19	Key *	all LCDs lit	bottom line of display darkens
20	Key #	all LCDs off	display clear

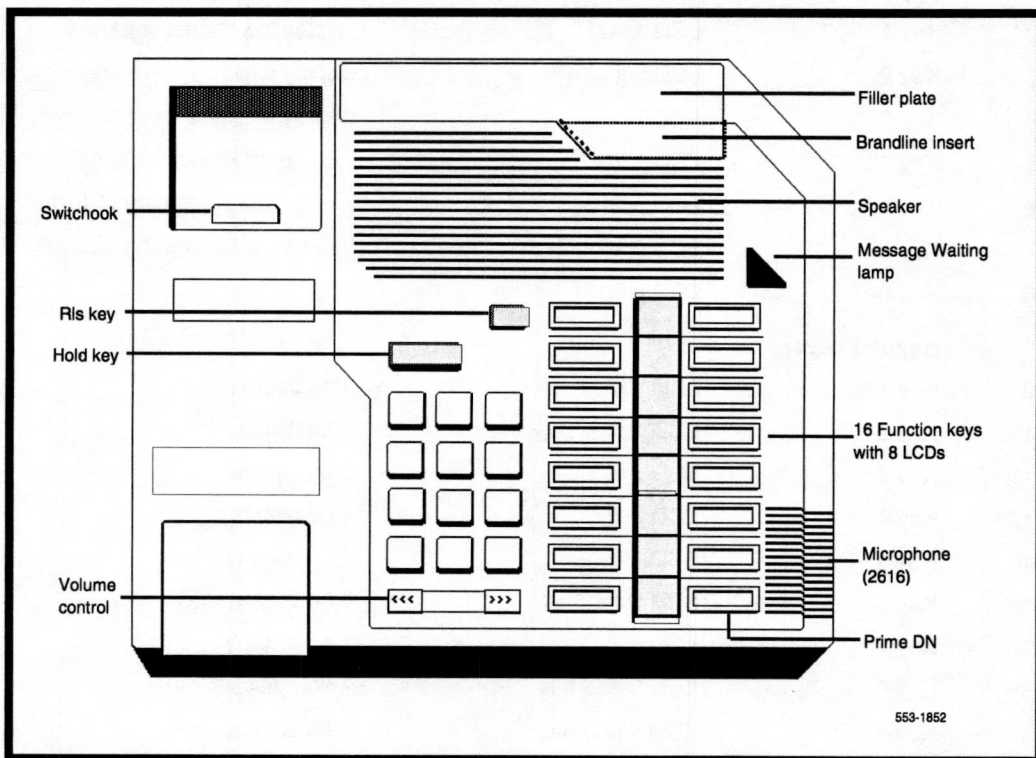
Table 8
Meridian M2008 Telephone test

Step	Key operated	LCD location and response	Display and Tones
Fixed keys:			
21	HLD	LCD 0 to 4 lit	
22	Release	all LCDs off	display clear
23	Off-hook	all LCDs flash	dial tone from handset only
24	On-hook	all LCDs fast flash	dial tone from speaker
25	Off-hook	all LCDs lit	display darkens
26	On-hook	all LCDs off	display clear
27	HLD	LCD 0 to 4 lit	buzzer
28	HLD	end of test	

M2216, M2016S and M2616 Telephone test

The set faceplate is shown in Figure 5. The M2216 test is provided in Table 9.
The M2016S and M2616 set test is provided in Table 10.

Figure 5
M2216, M2016S and M2616 set



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Table 9
M2216 Telephone test

Step	Key operated	LCD location and response	Display and Tones
Note: Do not test key 7			
Feature keys:			
1	Key 0	LCD 0 lit	display upper case letters
2	Key 1	LCD 1 lit	display lower case letters
3	Key 2	LCD 2 lit	display clear
4	Key 3	LCD 3 lit	display darkens
5	Key 4	LCD 4 lit	top line of display darkens
6	Key 5	LCD 5 lit	turn Message Waiting LED on
7	Key 6	LCD 6 lit	turn Message Waiting LED off
8	Key n>7	LCD n lit	
Keypad keys:			
9	Key 1	LCD 0 lit	1 on display
10	Key 2	LCD 1 lit	2 on display
11	Key 3	LCD 2 lit	3 on display
12	Key 4	LCD 3 lit	4 on display
13	Key 5	LCD 4 lit	5 on display
14	Key 6	LCD 5 lit	6 on display
15	Key 7	LCD 6 lit	7 on display
16	Key 8	LCD 0 and 6 lit	78 on display
17	Key 9	LCD 1 and 6 lit	9 on display
18	Key 0	LCD 2 and 6 lit	0 on display
19	Key *	all LCDs lit	bottom line of display darkens
20	Key #	all LCDs off	display clear
Fixed keys:			
21	HLD	LCD 0 to 4 lit	dial tone
22	HLD	LCD 0 to 4 lit	buzzer
23	HLD	end of test	

Table 10
M2016S and M2616 Telephone test

Step	Key operated	LCD location and response	Display and Tones
Note: Do not test key 7			
Feature keys:			
1	Key 0	LCD 0 lit	display upper case letters
2	Key 1	LCD 1 lit	display lower case letters
3	Key 2	LCD 2 lit	display clear
4	Key 3	LCD 3 lit	display darkens
5	Key 4	LCD 4 lit	top line of display darkens
6	Key 5	LCD 5 lit	turn Message Waiting LED on
7	Key 6	LCD 6 lit	turn Message Waiting LED off
8	Key n>7	LCD n lit	
Keypad keys:			
9	Key 1	LCD 0 lit	1 on display
10	Key 2	LCD 1 lit	2 on display
11	Key 3	LCD 2 lit	3 on display
12	Key 4	LCD 3 lit	4 on display
13	Key 5	LCD 4 lit	5 on display
14	Key 6	LCD 5 lit	6 on display
15	Key 7	LCD 6 lit	7 on display
16	Key 8	LCD 0 and 6 lit	8 on display
17	Key 9	LCD 1 and 6 lit	9 on display
18	Key 0	LCD 2 and 6 lit	0 on display
19	Key *	all LCDs lit	top line of display darkens
20	Key #	all LCDs off	display clear
Fixed keys:			
21	Handsfree	LCD 15 lit (with no display) LCD 0-2 lit (with display)	
22	Release	all LCDs off	

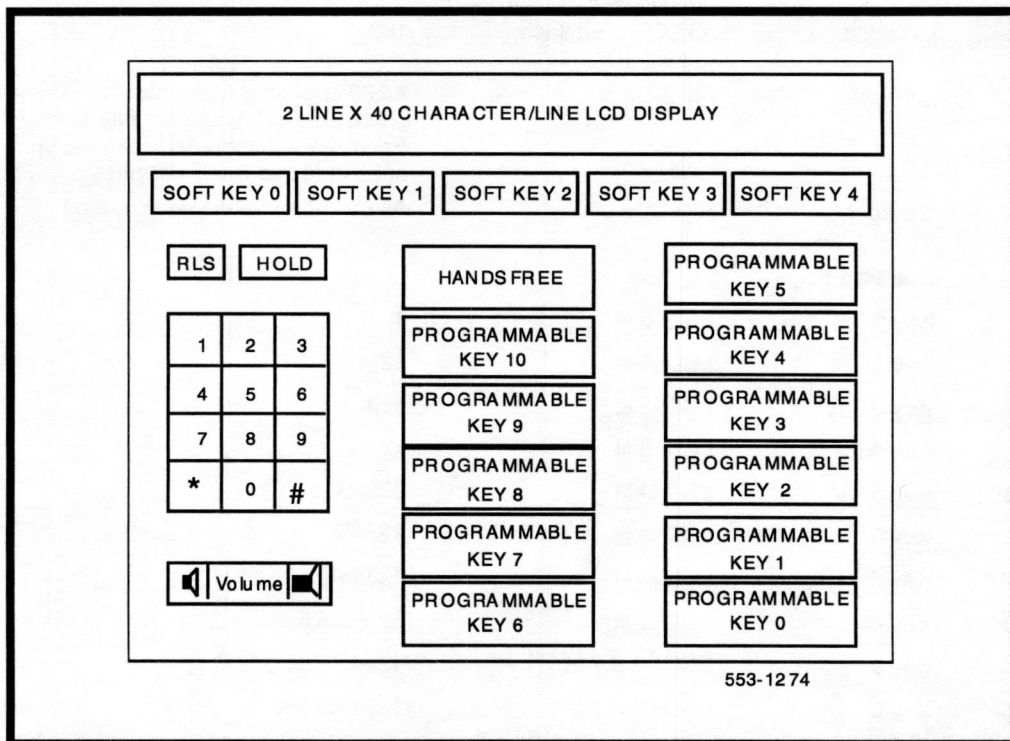
Table 10
M2016S and M2616 Telephone test

Step	Key operated	LCD location and response	Display and Tones
23	HLD	LCD 0 to 4 lit	dial tone from speaker
24	Off-hook	all LCDs flash	dial tone from handset
25	On-hook	all LCDs fast flash	dial tone from speaker
26	Off-hook	all LCDs lit	display darkens
27	On-hook	all LCDs off	display clear
28	HLD	LCD 0 to 4 lit	buzzer
29	HLD	end of test	

M2317 Telephone test

The key and LCD layout is shown in Figure 6. The test is provided in Table 11.

Figure 6
M2317 Series Telephone Key and LCD Layout



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Table 11
M2317 Telephone test

Step	Key operated	LCD location & response	Display and Tones
1	Press *	All LCD are lit	Blank
2	Off-hook	All LCDs flash (except Key 11)	192
3	On-hook	All LCDs fast flash (except Key 11)	192
4	Off-hook	All LCDs lit	All 80 character elements (40 characters x 2 lines) are fully lit. Each character element is made up of 35 dots in a 5 x 7 dot array.
5	On-hook	All LCDs off	All 80 character elements are off
Dial Pad Keys:			
6	Key 1	LCD 0 lit	1
7	Key 2	LCD 1 lit	12
8	Key 3	LCD 2 lit	123
9	Key 4	LCD 3 lit	1234
10	Key 5	LCD 4 lit	12345
11	Key 6	LCD 5 lit	123456
12	Key 7	LCD 6 lit	1234567
13	Key 8	LCD 7 lit	12345678
14	Key 9	LCDs 0 & 7 lit	123456789
15	Key 0	LCDs 1 & 7 lit	1234567890
16	Key 1	LCD 0 lit	12345678901
17	Key 2	LCD 1 lit	123456789012
18	Key 3	LCD 2 lit	1234567890123
19	Key 4	LCD 3 lit	12345678901234
20	Key 5	LCD 4 lit	123456789012345
21	Key 6	LCD 5 lit	1234567890123456
22	Key 7	LCD 6 lit	12345678901234567

Table 11
M2317 Telephone test

Step	Key operated	LCD location & response	Display and Tones
23	Key 8	LCD 7 lit	123456789012345678
24	Key 9	LCDs 0 & 7 lit	1234567890123456789
25	Key 0	LCDs 1 & 7 lit	12345678901234567890
26	Key 1	LCD 0 lit	12345678901234567890 1
27	Key 2	LCD 1 lit	12345678901234567890 12
28	Key 3	LCD 2 lit	12345678901234567890 123
29	Key 4	LCD 3 lit	12345678901234567890 1234
30	Key 5	LCD 4 lit	12345678901234567890 12345
31	Key 6	LCD 5 lit	12345678901234567890 123456
32	Key 7	LCD 6 lit	12345678901234567890 1234567
33	Key 8	LCD 7 lit	12345678901234567890 12345678
34	Key 9	LCDs 0 & 7 lit	12345678901234567890 123456789
35	Key 0	LCDs 1 & 7 lit	12345678901234567890 1234567890
36	Key 1	LCD 0 lit	12345678901234567890 12345678901234567890 1
37	Key 2	LCD 1 lit	12345678901234567890 12345678901234567890 12
38	Key 3	LCD 2 lit	12345678901234567890 12345678901234567890 123
39	Key 4	LCD 3 lit	12345678901234567890 12345678901234567890 1234

Table 11
M2317 Telephone test

Step	Key operated	LCD location & response	Display and Tones
40	Key 5	LCD 4 lit	12345678901234567890 12345678901234567890 12345
41	Key 6	LCD 5 lit	12345678901234567890 12345678901234567890 123456
42	Key 7	LCD 6 lit	12345678901234567890 12345678901234567890 1234567
43	Key 8	LCD 7 lit	12345678901234567890 12345678901234567890 12345678
44	Key 9	LCDs 0 & 7 lit	12345678901234567890 12345678901234567890 123456789
45	Key 0	LCDs 1 & 7 lit	12345678901234567890 12345678901234567890 1234567890
46	Key *	All LCD lit (except Key 11)	88888888888888888888 88888888888888888888
47	Key #	All LCD go off	Display clears
Programmable Keys:			
48	Key 0	LCD 0 lit	Blank
49	Key 1	LCD 1 lit	Blank
50	Key 2	LCD 2 lit	Blank
51	Key 3	LCD 3 lit	Blank
52	Key 4	LCD 4 lit	Blank
53	Key 5	LCD 5 lit	Blank
54	Key 6	LCD 6 lit	Blank
55	Key 7	LCD 7 lit	Blank
56	Key 8	LCD 8 lit	Blank

Table 11
M2317 Telephone test

Step	Key operated	LCD location & response	Display and Tones
57	Key 9	LCD 9 lit	Blank
58	Key 10	LCD 10 lit	Blank
Soft Keys:			
59	Key 0	LCD 0 flashes 60 ipm	ABCDEFGHIJKLMNO PQRSTUVWXYZ
60	Key 1	LCD 1 flashes 60 ipm	Display clears
61	Key 2	LCD 2 flashes 60 ipm	abcdefghijklmnopqr stvwxyzabcdefghijklm
62	Key 3	LCD 3 flashes 60 ipm	Display clears
63	Key 4	LCD 4 flashes 60 ipm	Display clears
64	Press HOLD key	LCD 0 to 4 light steadily (Key 11 lit)	Dial tone heard through speaker
65	Handset off-hook	All LCD flash at 60 ipm (Key 11 off)	Dial tone heard through handset
66	Handset on-hook	All LCD fast flash at 120 ipm (Key 11 on)	Dial tone heard through speaker
67	Press HANDSFREE key	LCD 0 to 2 light steadily	
68	Press RELEASE key	All LCD go off	
69	Press HOLD key	LCD 0 to 4 light steadily	Buzz heard through speaker
70	Press HOLD key	End of test	

QCW-type Attendant Console test

This is the procedure for testing the basic Attendant Console used with most Meridian systems. Start these tests with the headset/handset plugged in. Tones, except for Buzz, are heard from the headset/handset.

Figure 7 show the optional lamp field array. Table 12, "QCW-type Attendant Console test," on page 74. Figure 7 shows the layout of the keys and LEDs on a console.

Figure 7
Lamp Field Array Response

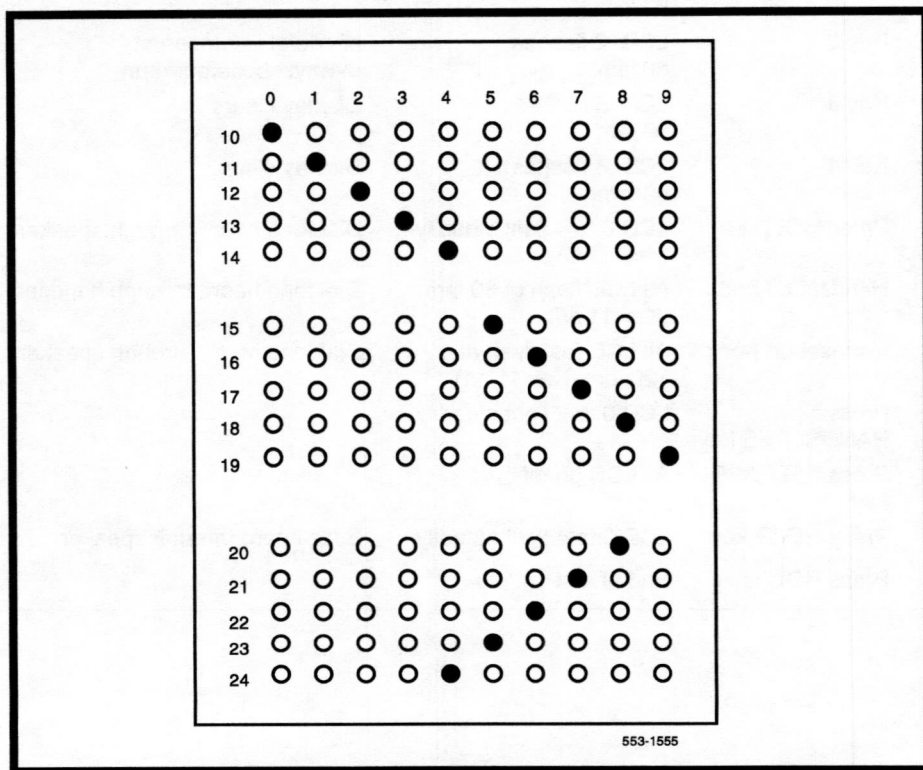
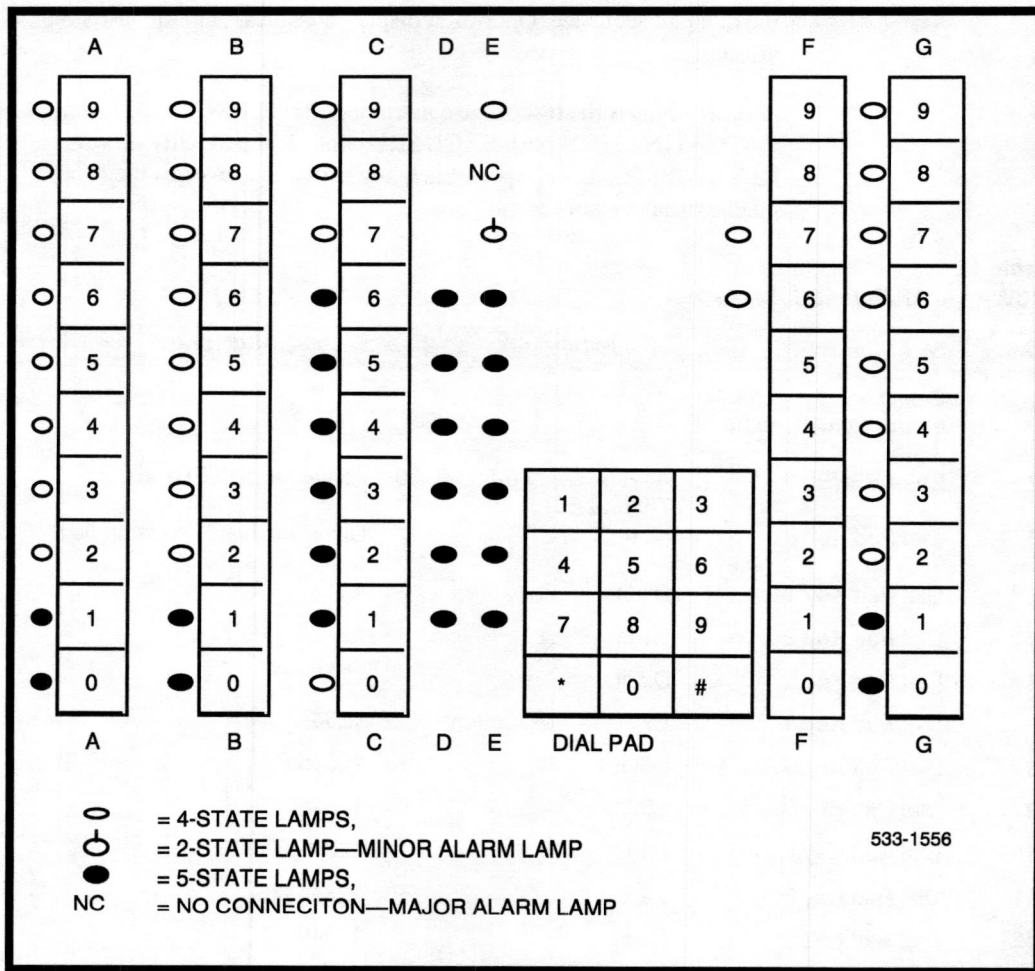


Figure 8
SL-1 Console Key and LED Layout



QCW-type Attendant Console test

Note 1: If the console has a 16-digit display, test all digits by repeating the dial pad sequence. On 8-digit display consoles, only the last 8 digits are shown.

Note 2: This is the test of the conference circuit. EXCL DEST controls the DESTINATION port, EXCL SRC controls the SOURCE ports and RLS the ATTENDANT port. Each key activation reverses the enable/disable status of the port.

Table 12
QCW-type Attendant Console test

Step	Key operated	LCD location & response	Display and Tones
1	Select an idle loop key on the Console to be tested.		
2	Enter SPRE 92	All lit (except F0-5, 8-9, D0, 7-9 and E0)	All field array LEDs are lit
3	Dial Pad Key #	All unlit	Display is blank, all lamp field array LEDs are off
4	Dial Pad Key 1	D1 lit	1
5	Dial Pad Key 2	E1 lit	12
6	Dial Pad Key 3	D2 lit	123
7	Dial Pad Key 4	E2 lit	1234
8	Dial Pad Key 5	D3 lit	12345
9	Dial Pad Key 6	E3 lit	123456
10	Dial Pad Key 7	D4 lit	1234567
11	Dial Pad Key 8	E4 lit	12345678
12	Dial Pad Key 9	D5 lit	123456789
13	Dial Pad Key 0	E5 lit	1234567890 (See Note 1)
14	Dial Pad Key *	All lit (except F0-5, 8-9, D0, 7-9 and E0)	8888888888888888 All field array LEDs are lit
15	Dial Pad Key #	all unlit	Blank, all lamp field array LEDs are off
16	Strip A key 0	A0 lit	
17	Strip A key 1	A1 lit	

Table 12
QCW-type Attendant Console test

Step	Key operated	LCD location & response	Display and Tones
18	Strip A key 2	A2 lit	
19	Strip A key 3	A3 lit	
20	Strip A key 4	A4 lit	
21	Strip A key 5	A5 lit	
22	Strip A key 6	A6 lit	
23	Strip A key 7	A7 lit	
24	Strip A key 8	A8 lit	
25	Strip A key 9	A9 lit	
26	Strip B key 0	B0 lit	
27	Strip B key 1	B1 lit	
28	Strip B key 2	B2 lit	
29	Strip B key 3	B3 lit	
30	Strip B key 4	B4 lit	
31	Strip B key 5	B5 lit	
32	Strip B key 6	B6 lit	
33	Strip B key 7	B7 lit	
34	Strip B key 8	B8 lit	
35	Strip B key 9	B9 lit	
36	Strip C key 0	C0 lit	
37	Strip C key 1	C1 lit	
38	Strip C key 2	C2 lit	
39	Strip C key 3	C3 lit	
40	Strip C key 4	C4 lit	
41	Strip C key 5	C5 lit	
42	Strip C key 6	C6 lit	
43	Strip C key 7	C7 lit	
44	Strip C key 8	C8 lit	

Table 12

QCW-type Attendant Console test

Step	Key operated	LCD location & response	Display and Tones
45	Strip C key 9	C9 lit	
46	Strip G key 0	G0 lit	Lamp field array displays a diagonal pattern as shown in Figure 7
47	Strip G key 1	G1 lit	All field array LEDs are off
48	Strip G key 2	G2 lit	
49	Strip G key 3	G3 lit	
50	Strip G key 4	G4 lit	
51	Strip G key 5	G5 lit	
52	Strip G key 6	G6 lit	
53	Strip G key 7	G7 lit	
54	Strip G key 8	G8 lit	
55	Strip G key 9	G9 lit	

Note: If console is equipped with 10- or 20-button modules, proceed to Step 56. If not, go to Step 66.

56	Strip H key 0	H0 lit
57	Strip H key 1	H1 lit
58	Strip H key 2	H2 lit
59	Strip H key 3	H3 lit
60	Strip H key 4	H4 lit
61	Strip H key 5	H5 lit
62	Strip H key 6	H6 lit
63	Strip H key 7	H7 lit
64	Strip H key 8	H0 and H7 lit
65	Strip H key 9	H1 and H7 lit

Note: Test all remaining key strips in a similar manner to H before testing strip F. H7 remains lit for strip I test.

66	Strip F key 0	B0 to B4 lit. H7 and I7 lit.	Busy tone
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Table 12
QCW-type Attendant Console test

Step	Key operated	LCD location & response	Display and Tones
67	Strip F key 1	All lit (except D0, 7-9, E8, F0-5, F8-9)	8888888888888888
68	Strip F key 1	All Fast Flash at 120 ipm (except D0, 7-9, E8, F0-5, F8-9)	Blank
69	Strip F key 1	All Flash at 60 ipm (except D0, 7-9, E8, F0-5, F8-9)	Blank
70	Strip F key 1	C1-6, D1-6, E1-6, and G0-1 Slow Flash at 30 ipm.	
71	Strip F key 2	All strip A lit	Blank
72	Strip F key 3	All strip B lit	
73	Strip F key 4	All off	
74	Strip F key 5 (See Note 2)	B0 to B4 lit	Busy tone and dial tone
75	Strip F key 6 (See Note 2)	B0 to B4 off	Dial tone only
76	Strip F key 5 (See Note 2)	B0 to B4 lit	No tone
77	Strip F key 6 (See Note 2)	B0 to B4 off	Busy tone only
78	Strip F key 7 (See Note 2)	B0 to B4 lit	No tone
79	Strip F key 7 (See Note 2)	B0 to B4 off	Busy tone
80	Handset out	B0 to B4 off	Speaker on (all keys disabled on QCW4E only)
81	Handset in	B0 to B4 lit	Speaker off, tone in handset receiver
82	Strip F key 0	B0 to B4 lit	Buzz in speaker
83	Strip F key 9	F7 lit	Volume up
84	Strip F key 8	F6 lit	Volume down
85	Strip F key 0	End of test	
86	Repeat test for all remaining consoles		

M1250 Console test

The M1250 and M2250 faceplate is shown in Figure 9. The tests are provided in the following tables:

Table 13 — M1250 console test

Table 14 — M1250 console test in QMT2 mode

Table 15 — M2250 console test

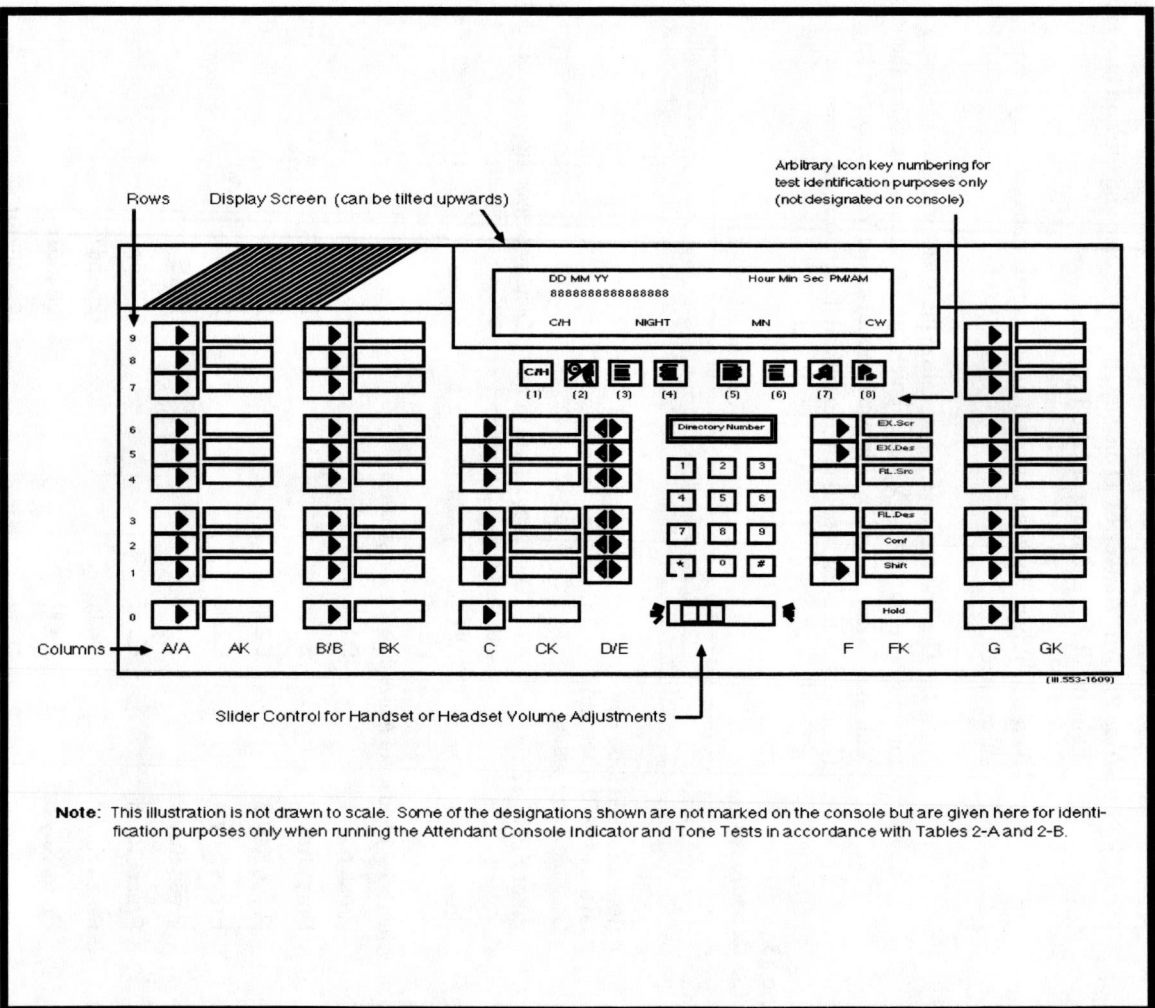
QMT2 mode for M1250 Console

When console is configured for the QMT2 mode, the two left most keystrips imitate add-on keystrips QMT2 of QCW-type consoles when in shift mode. For the M1250 console to operate in the QMT2 mode, Option IC2 must be assigned in the Customer Data Block (LD 15).

To place the M1250 into QMT2 mode:

- 1 Unplug the console from the wall jack.
- 2 Open the console faceplate and the set dip-switch on the top circuit board to ON. Refer to the NTP titled *Installation Procedures for Telephone Sets and Attendant Consoles*.
- 3 Replace the console faceplate.
- 4 Plug the console into the wall jack.
- 5 Put the M1250 console in an idle state, with handset or headset plugged in.
- 6 Press SHIFT to put the console into shift mode.
- 7 Enter diagnostics mode by pressing F6 function key.
- 8 From the diagnostics menu on the Liquid Crystal Display (LCD) screen, select the QMT2 option by keying in the number (3) from the dial pad, then check for ON confirmation on line 2 of the LCD screen.
- 9 Exit the diagnostics menu by pressing the octothorpe (#) key.
- 10 Return to the operating mode by pressing the # key again.

Figure 9
SL-1 M1250 and M2250 Console — Key and LCD Layout



M1250 Console test

Note 1: Refer to Table 14 for M1250 test in the QMT2 mode.

Note 2: An "Active" LCD display shows the date and time on line 1, digits on line 2, and the word ACTIVE on line 4.

Note 3: Where "headset" is written, the word "handset" may be substituted.

Note 4: The volume keys for adjusting the speaker volume (alerting tones) have eight levels. Volume levels are adjusted by pressing the Volume Up key (Icon key 2 in Shift mode) or the Volume Down key (Icon key 3 in Shift mode) once for each change in level.

Table 13
M1250 Console test

Step	Key operated	LCD location and response	Display and Tones
1	Select an idle loop key on the M1250 Attendant Console to be tested.		
2	Enter SPRE 92	All LCD indicators are lit as illustrated in Figure 9.	Display screen appears as shown in Figure 9.
3	Press Key #	All LCD key indicators are blank	Active
Note: When lines 1 and 4 are Active, line 2 displays digits.			
4	Press Key 1	D1 lit	1
5	Press Key 2	E1 lit	12
6	Press Key 3	D2 lit	123
7	Press Key 4	E2 lit	1234
8	Press Key 5	D3 lit	12345
9	Press Key 6	E3 lit	123456
10	Press Key 7	D4 lit	1234567
11	Press Key 8	E4 lit	12345678
12	Press Key 9	D5 lit	123456789

Table 13
M1250 Console test

Step	Key operated	LCD location and response	Display and Tones
13	Press Key 0	E5 lit	1234567890
<p>Note: Only 16 integers (maximum) are displayed, even though the display line has a total capacity of 40 characters. If steps 4 to 13 are repeated, line 2 displays the numbers 1 to 0 as shown here. The display appears where the field is filled with eights (8's) in Figure 9. After key 7 is pressed, one number is truncated off the right of the display for each number added on the left. Avoid this scrolling condition as it may disrupt the rest of the test.</p>			
14	Press Key *	All LCD indicators are lit as illustrated in Figure 9, except FK0-4.	Display screen appears as shown in Figure 9.
15	Press Key #	All LCD key indicators are blank	Active
16	Press AK key 0	A0 blank	Active
17	Press AK key 1	A1 blank	Active
18	Press AK key 2	A2 blank	Active
19	Press AK key 3	A3 blank	Active
20	Press AK key 4	A4 blank	Active
21	Press AK key 5	A5 blank	Active
22	Press AK key 6	A6 blank	Active
23	Press AK key 7	A7 blank	Active
24	Press AK key 8	A8 blank	Active
25	Press AK key 9	A9 blank	Active
26	Press BK key 0	B0 lit	Active
27	Press BK key 1	B1 lit	Active
28	Press BK key 2	B2 lit	Active
29	Press BK key 3	B3 lit	Active
30	Press BK key 4	B4 lit	Active
31	Press BK key 5	B5 lit	Active
32	Press BK key 6	B6 lit	Active
33	Press BK key 7	B7 lit	Active

Table 13
M1250 Console test

Step	Key operated	LCD location and response	Display and Tones
34	Press BK key 8	B8 lit	Active
35	Press BK key 9	B9 lit	Active
36	Press CK key 0	C0 lit	Idle
37	Press CK key 1	C1 lit	Active
38	Press CK key 2	C2 lit	Active
39	Press CK key 3	C3 lit	Active
40	Press CK key 4	C4 lit	Active
41	Press CK key 5	C5 lit	Active
42	Press CK key 6	C6 lit	Active
43	Press Icon key (1)		C/H and Active
44	Press Icon key (2)		BUSY/NIGHT
<p>Note: BUSY or NIGHT display is dependent on how many consoles are configured in the system, and the state of those consoles at the time of the test.</p> <ol style="list-style-type: none"> 1. BUSY = Standard consoles are POS BUSY — M1250 is IDLE 2. NIGHT = all consoles are POS BUSY 			
45	Press FK key 1	F1 lit	BUSY/NIGHT
46	Press Icon key (2)	F1 lit	BUSY/NIGHT
47	Press FK key 1	F1 off	BUSY/NIGHT
48	Press GK key 0	G0 lit	Active
49	Press GK key 1	G1 lit	Active
50	Press GK key 2	G2 lit	Active
51	Press GK key 3	G3 lit	Active
52	Press GK key 4	G4 lit	Active
53	Press GK key 5	G5 lit	Active
54	Press GK key 6	G6 lit	Active
55	Press GK key 7	G7 lit	Active
56	Press GK key 8	G8 lit	Active

Table 13
M1250 Console test

Step	Key operated	LCD location and response	Display and Tones
57	Press GK key 9	G9 lit	Active
58	Press FK key 1	G9 and F1 lit	Active
59	Press AK key 0	A0 and F1 lit	Active
60	Press AK key 1	A1 and F1 lit	Active
61	Press AK key 2	A2 and F1 lit	Active
62	Press AK key 3	A3 and F1 lit	Active
63	Press AK key 4	A4 and F1 lit	Active
64	Press AK key 5	A5 and F1 lit	Active
65	Press AK key 6	A6 and F1 lit	Active
66	Press AK key 7	A7 and F1 lit	Active
67	Press AK key 8	A8 and F1 lit	Active
68	Press AK key 9	A9 and F1 lit	Active
69	Press BK key 0	B0 and F1 lit	Active
70	Press BK key 1	B1 and F1 lit	Active
71	Press BK key 2	B2 and F1 lit	Active
72	Press BK key 3	B3 and F1 lit	Active
73	Press BK key 4	B4 and F1 lit	Active
74	Press BK key 5	B5 and F1 lit	Active
75	Press BK key 6	B6 and F1 lit	Active
76	Press BK key 7	B7 and F1 lit	Active
77	Press BK key 8	B8 and F1 lit	Active
78	Press BK key 9	B9 and F1 lit	Active
79	Press FK key 0	B0-4, and F1 lit	Active
80	Press FK key 0		Active tone
81	Press FK key 0	C0 and F1 lit	BUSY/NIGHT

Table 13
M1250 Console test

Step	Key operated	LCD location and response	Display and Tones
Note: BUSY or NIGHT display is dependent on how many consoles are configured in the system, and the state of those consoles at the time of the test.			
1. BUSY = Standard consoles are POS BUSY — M1250 is IDLE 2. NIGHT = all consoles are POS BUSY			
82	Press CK key 1	C1 and F1 lit	BUSY/NIGHT
83	Dial SPRE 92	As shown in Figure 9.	As shown in Figure 9.
84	Press key #	F1 lit while all other LCDs are blank.	Active
85	Press FK key 0	B0-4 and F1 lit	Active
86	Press FK key 1	F1 goes blank (B0-4 still lit)	Active
87	Press FK key 2	All LCDs are lit as in Figure 8, except F1.	Night
88	Press FK key 2	All LCDs Fast Flash at 120 ipm.	Fast Flash Active/Night
89	Press FK key 2	All LCDs Flash at 60 ipm.	Flash Active/Night
90	Press FK key 2	These LCDs are lit: C1-6, D/E1-6, G0-1 Slow Flash at 30 ipm.	
91	Press FK key 3	All of Key Strip A is lit	Active
92	Press FK key 4	All LCDs in strip B are lit	Active
93	Press Icon key (8)	All LCDs are blank	Active
94	Press Icon key (7)	B0-4 lit	Active
95	Press Strip FK key 5	B0-4 lit	Active
96	Press Icon key (7)	All LCDs are blank	Active
97	Press FK key 5	B0-4 are lit	Active
98	Press FK key 6	B0-4 lit	Active
99	Press FK key 6	B0-4 are blank	Active

Table 13
M1250 Console test

Step	Key operated	LCD location and response	Display and Tones
100	Remove the headset jack (unplug the headset)	All LCDs are blank	Active
101	Replace the headset jack (plug-in the headset)	B0-4 lit	Active
102	Press FK key 0	B0-4 lit	Buzz tone to the Attendant display is active
103	Press FK key 0	C0 lit	BUSY/NIGHT
104	Press FK key 0	End of test	NIGHT

M1250 Console test in QMT2 mode

Note 1: An “Active” LCD display shows the date and time on line 1, digits on line 2, and the word ACTIVE on line 4.

Note 2: Where “headset” is written, the word “handset” may be substituted.

Note 3: The volume keys for adjusting the speaker volume (alerting tones) have eight levels. Volume levels are adjusted by pressing the Volume Up key (Icon key 2 in Shift mode) or the Volume Down key (Icon key 3 in Shift mode) once for each change in level.

Note 4: Ensure console is not in shift mode when beginning test.

Table 14
M1250 Console test in QMT2 mode

Step	Key operated	LCD location and response	Display and Tones
Step	Key operated	LCD location and response	Display and Tones
1	Select an idle loop key on the M1250 console to be tested.		
2	Enter SPRE 92	All LCD indicators are lit as illustrated in Figure 9. AA and BB lit on both sides.	The display screen is activated and shows all alphanumerics as indicated in Figure 9.
3	Dial Pad Key #	All LCD indicators are blank.	Active
4	Dial Pad Key 1	D1 lit	1
5	Dial Pad Key 2	E1 lit	12
6	Dial Pad Key 3	D2 lit	123
7	Dial Pad Key 4	E2 lit	1234
8	Dial Pad Key 5	D3 lit	12345
9	Dial Pad Key 6	E3 lit	123456
10	Dial Pad Key 7	D4 lit	1234567
11	Dial Pad Key 8	E4 lit	12345678
12	Dial Pad Key 9	D5 lit	123456789

Table 14
M1250 Console test in QMT2 mode

Step	Key operated	LCD location and response	Display and Tones
13	Dial Pad Key 0	E5 lit	1234567890
<p>Note: Only 16 integers (maximum) are displayed, even though the display line has a total capacity of 40 characters. If steps 4 to 13 are repeated line 2 displays the numbers 1 to 0 as shown here. The display appears where the field is filled with eights in Figure 9. After key 7 is pressed, one number is truncated off the right of the display for each number added on the left. Avoid this scrolling condition as it may disrupt the rest of the test.</p>			
14	Dial Pad Key *	All LCD indicators are lit as illustrated in Figure 9.	Display screen is activated and displays alphanumerics as indicated in Figure 9.
15	Dial Pad Key #	All LCD indicators are blank	Active
16	Strip AK key 0	A0 lit	Active
17	Strip AK key 1	A1 lit	Active
18	Strip AK key 2	A2 lit	Active
19	Strip AK key 3	A3 lit	Active
20	Strip AK key 4	A4 lit	Active
21	Strip AK key 5	A5 lit	Active
22	Strip AK key 6	A6 lit	Active
23	Strip AK key 7	A7 lit	Active
24	Strip AK key 8	A8 lit	Active
25	Strip AK key 9	A9 lit	Active
26	Strip BK key 0	B0 lit	Active
27	Strip BK key 1	B1 lit	Active
28	Strip BK key 2	B2 lit	Active
29	Strip BK key 3	B3 lit	Active
30	Strip BK key 4	B4 lit	Active
31	Strip BK key 5	B5 lit	Active
32	Strip BK key 6	B6 lit	Active
33	Strip BK key 7	B7 lit	Active
34	Strip BK key 8	B8 lit	Active

Table 14

M1250 Console test in QMT2 mode

Step	Key operated	LCD location and response	Display and Tones
35	Strip BK key 9	B9 lit	Active
36	Strip CK key 0	C0 lit	Active
37	Strip CK key 1	C1 lit	Active
38	Strip CK key 2	C2 lit	Active
39	Strip CK key 3	C3 lit	Active
40	Strip CK key 4	C4 lit	Active
41	Strip CK key 5	C5 lit	Active
42	Strip CK key 6	C6 lit	Active
43	Icon key (1)	—	C/H and Active
44	Icon key (2)	—	BUSY
45	Strip FK key 1	F1 lit	BUSY
46	Icon key (2)	F1 lit	NIGHT
47	Strip FK key 1	—	NIGHT
48	Strip GK key 0	G0 lit	Active
49	Strip GK key 1	G1 lit	Active
50	Strip GK key 2	G2 lit	Active
51	Strip GK key 3	G3 lit	Active
52	Strip GK key 4	G4 lit	Active
53	Strip GK key 5	G5 lit	Active
54	Strip GK key 6	G6 lit	Active
55	Strip GK key 7	G7 lit	Active
56	Strip GK key 8	G8 lit	Active
57	Strip GK key 9	G9 lit	Active
58	Strip FK key 1	G9 and F1 lit	Active
59	Strip AK key 0	A0 and F1 lit	Active
60	Strip AK key 1	A1 and F1 lit	Active

Table 14
M1250 Console test in QMT2 mode

Step	Key operated	LCD location and response	Display and Tones
61	Strip AK key 2	A2 and F1 lit	Active
62	Strip AK key 3	A3 and F1 lit	Active
63	Strip AK key 4	A4 and F1 lit	Active
64	Strip AK key 5	A5 and F1 lit	Active
65	Strip AK key 6	A6 and F1 lit	Active
66	Strip AK key 7	A7 and F1 lit	Active
67	Strip AK key 8	A7, A0 and F1 lit	Active
68	Strip AK key 9	A7, A1 and F1 lit	Active
69	Strip BK key 0	A7, B0 and F1 lit	Active
70	Strip BK key 1	A7, B1 and F1 lit	Active
71	Strip BK key 2	A7, B2 and F1 lit	Active
72	Strip BK key 3	A7, B3 and F1 lit	Active
73	Strip BK key 4	A7, B4 and F1 lit	Active
74	Strip BK key 5	A7, B5 and F1 lit	Active
75	Strip BK key 6	A7, B6 and F1 lit	Active
76	Strip BK key 7	A7, B7 and F1 lit	Active
77	Strip BK key 8	A7, B7, B0 and F1 lit	Active
78	Strip BK key 9	A7, B0, B1 and F1 lit	Active
79	Strip FK key 0	A7, B7, B0 to B4 and F1 lit	Active and busy tone
80	Strip FK key 0	A7, B7, B0 to B4 and F1 lit	Active and tone from speaker
81	Strip FK key 0	C0 and F1 lit	NIGHT
82	Strip FK key 1	C0 lit	NIGHT
83	Strip CK key 1	All LCD key indicators are blank	Display screen is activated and shows all alphanumerics as indicated in Figure 9.
84	Dial Pad Key #	All LCD key indicators remain blank	Active

Table 14
M1250 Console test in QMT2 mode

Step	Key operated	LCD location and response	Display and Tones
85	Strip FK key 0	B0 to B4 lit	Active and busy tone
86	Strip FK key 2	All LCD indicators are lit as illustrated in Figure 9.	Display is activated and displays all alphanumerics as indicated in Figure 9.
87	Strip FK key 2	As in Step 86, but LCD indicators Fast Flash at 120 ipm.	As in Step 86, but LCD display Fast Flashes at 120 ipm.
88	Strip FK key 2	As in Step 86, but LCD indicators Flash at 60 ipm.	As in Step 86, but LCD display Flashes at 60 ipm.
89	Strip FK key 2	All 5-state LCD indicators (strips C and D/E) Slow Flash at 30 ipm.	Active
90	Strip FK key 3	All LCD indicators in strip A/A are lit	Active
91	Strip FK key 4	All LCD indicators in strip B/B lit	Active
92	Icon key (8)	All LCD indicators go off	Active
93	Icon key (7)	LCD indicators B0 to B4 lit	Active and dial tone, then busy tone
94	Strip FK key 5	LCD indicators B0 to B4 go off	Active and dial tone
95	Icon key (7)	LCD indicators B0 to B4 lit	Active
96	Strip FK key 5	LCD indicators B0 to B4 go off	Active and busy tone
97	Strip FK key 6	LCD indicators B0 to B4 lit	Active
98	Strip FK key 6	LCD indicators B0 to B4 go off	Active and busy tone
99	Handset unjacked	All LCD indicators go off	Active
100	Handset jacked in	B0 to B4 lit	Active and busy tone
101	Handset unjacked	All LCD indicators go off	Active
102	Handset jacked in at other side of console	B0 to B4 lit	Active and busy tone

Table 14

M1250 Console test in QMT2 mode

Step	Key operated	LCD location and response	Display and Tones
103	Strip FK key 0	B0 to B4 lit	Active and tone from speaker
104	Strip FK key 0	C0 lit	NIGHT
End of test. Repeat for all additional consoles in QMT2 mode.			

M2250 Console

Table 15
M2250 Console

Step	Key operated	LCD location and response	Display and Tones
1	Select idle loop key		
2	Enter SPRE code 92	All LCDs lit except F1	88888888888888888888... 88888888888888888888...
3	Press dial pad #	All off	Active
4	Press dial key 1	D1 lit	1
5	Press dial key 2	E1 lit	12
6	Press dial key 3	D2 lit	123
7	Press dial key 4	E2 lit	1234
8	Press dial key 5	D3 lit	12345
9	Press dial key 6	E3 lit	123456
10	Press dial key 7	D4 lit	1234567
11	Press dial key 8	E4 lit	12345678
12	Press dial key 9	D5 lit	123456789
13	Press dial key 0	E5 lit	1234567890
14	Repeat step 4 until both lines of the display are full		12345678901234567... 12345678901234567...
15	Press dial pad *	All LCDs lit except F1	88888888888888888888... 88888888888888888888...
16	Press dial pad #	All LCD blank	ACTIVE
17	Press AK key 0	A0 lit	ABCDEF GHIJ KLMNOP... NOPQRSTU VWXYZAB...
18	Press AK key 1	A1 lit	abcdefghijklmnopqrstuv wxyzabcdefghijklmnop
19	Press AK key 2	A2 lit	Display shows series of dark squares
20	Press AK key 3	A3 lit	ACTIVE
21	Press AK key 4	A4 lit	ACTIVE

Table 15
M2250 Console

Step	Key operated	LCD location and response	Display and Tones
22	Press AK key 5	A5 lit	ACTIVE
23	Press AK key 6	A6 lit	ACTIVE
24	Press AK key 7	A7 lit	ACTIVE
25	Press AK key 8	A8 lit	ACTIVE
26	Press AK key 9	A9 lit	ACTIVE
27	Press BK key 0	B0 lit	ACTIVE
28	Press BK key 1	B1 lit	ACTIVE
29	Press BK key 2	B2 lit	ACTIVE
30	Press BK key 3	B3 lit	ACTIVE
31	Press BK key 4	B4 lit	ACTIVE
32	Press BK key 5	B5 lit	ACTIVE
33	Press BK key 6	B6 lit	ACTIVE
34	Press BK key 7	B7 lit	ACTIVE
35	Press BK key 8	B8 lit	ACTIVE
36	Press BK key 9	B9 lit	ACTIVE
37	Press CK key 0	C0 lit	IDLE
38	Press CK key 1	C1 lit	ACTIVE
39	Press CK key 2	C2 lit	ACTIVE
40	Press CK key 3	C3 lit	ACTIVE
41	Press CK key 4	C4 lit	ACTIVE
42	Press CK key 5	C5 lit	ACTIVE
43	Press CK key 6	C6 lit	ACTIVE
44	Press Icon key 1		C/H and ACTIVE
45	Press Icon key 2		BUSY
46	Press CK key 0	C1 lit	IDLE
47	Press GK key 0	GO lit	ACTIVE

Table 15
M2250 Console

Step	Key operated	LCD location and response	Display and Tones
48	Press GK key 1	G1 lit	ACTIVE
49	Press GK key 2	G2 lit	ACTIVE
50	Press GK key 3	G3 lit	ACTIVE
51	Press GK key 4	G4 lit	ACTIVE
52	Press GK key 5	G5 lit	ACTIVE
53	Press GK key 6	G6 lit	ACTIVE
54	Press GK key 7	G7 lit	ACTIVE
55	Press GK key 8	G8 lit	ACTIVE
56	Press GK key 9	G9 lit	ACTIVE
57	Press FK key 1	G9 and F1 lit	[S] ACTIVE
58	Press AK key 0	A0 and F1 lit	[S] ACTIVE
59	Press AK key 1	A1 and F1 lit	[S] ACTIVE
60	Press AK key 2	A2 and F1 lit	[S] ACTIVE
61	Press AK key 3	A3 and F1 lit	[S] ACTIVE
62	Press AK key 4	A4 and F1 lit	[S] ACTIVE
63	Press AK key 5	A5 and F1 lit	[S] ACTIVE
64	Press AK key 6	A6 and F1 lit	[S] ACTIVE
65	Press AK key 7	A7 and F1 lit	[S] ACTIVE
66	Press AK key 8	A8 and F1 lit	[S] ACTIVE
67	Press AK key 9	A9 and F1 lit	[S] ACTIVE
68	Press GK key 0	G1 and F1 lit	[S] ACTIVE
69	Press GK key 1	G2 and F1 lit	[S] ACTIVE
70	Press GK key 2	G3 and F1 lit	[S] ACTIVE
71	Press GK key 3	G4 and F1 lit	[S] ACTIVE
72	Press GK key 4	G4 and F1 lit	[S] ACTIVE
73	Press GK key 5	G5 and F1 lit	[S] ACTIVE

Table 15
M2250 Console

Step	Key operated	LCD location and response	Display and Tones
74	Press GK key 6	G6 and F1 lit	[S] ACTIVE
75	Press GK key 7	G7 and F1 lit	[S] ACTIVE
76	Press GK key 8	G8 and F1 lit	[S] ACTIVE
77	Press GK key 9	G9 and F1 lit	[S] ACTIVE
78	Press Hold key	F1 and B0-4 lit	[S] Busy tone in handset
79	Press Hold key	F1 and B0-4 lit	[S] Buzz in speaker
80	Press Hold key	F1 and C0 lit	[S] NIGHT or BUSY
81	Press CK key 1	F1 and C1 lit	[S] NIGHT or BUSY
82	Dial SPRE 92	All LCDs lit	88888888888888888888... 88888888888888888888...
83	Press dialpad #	F1 lit	[S] ACTIVE
84	Press FK key 1		ACTIVE
85	Press FK key 2	All LCDs lit except F1	88888888888888888888... 88888888888888888888...
86	Press FK key 2	LCDs Flash at 120 ipm	Flash ACTIVE/NIGHT
87	Press FK key 2	LCDs Flash at 60 ipm	Flash ACTIVE/NIGHT
88	Press FK key 2	LCDs Flash at 30 ipm	Flash ACTIVE/NIGHT
89	Press Icon key 8	All LCDs off	ACTIVE
90	Press Icon key 7	B0-4 lit	ACTIVE, dial tone
91	Press FK key 5	All LCDs off	ACTIVE, dial tone
92	Press Icon key 7	B0-4 lit	ACTIVE
93	Press FK key 5	All LCDs off	ACTIVE
94	Press FK key 6	B0-4 lit	ACTIVE
95	Press FK key 6	All LCDs off	ACTIVE
96	Handset out	All LCDs off	ACTIVE
97	Handset in	B0-4 lit	ACTIVE
98	Handset out	All LCDs off	ACTIVE

Table 15
M2250 Console

Step	Key operated	LCD location and response	Display and Tones
99	Handset in other side of console	B0-4 lit	ACTIVE
100	Press Hold key	B0-4 lit	ACTIVE, busy tone
101	Press Hold key	B0-4 lit	ACTIVE, Buzz in speaker
102	Press Hold key	C0 lit	NIGHT
103	End of test		

LD 32: Network and Peripheral Equipment Diagnostic

LD 32 performs checks and maintenance functions on network and Peripheral Signaling equipment. LD 32 will allow commands to be used for XTD cards. The STAT command will produce an output which has XTD, LDC or LGD appended where required.

On an Option 11 system, this program can be used to:

- get the status of peripheral equipment cards and units
- enable and disable peripheral equipment cards and units
- test message waiting lamps on 500/2500 telephone sets
- print set and card IDs on superloops
- convert packed TNs in hex to the card and unit format

On systems other than Option 11, this program is used to:

- get the status of Peripheral Signaling (PS), Controller and network cards
- get the status of PE shelves cards and units
- disable and enable PS, Controller and network cards
- disable and enable PE shelves, cards and units
- test message waiting lamps on 500/2500 sets
- list TNs of 500/2500 sets with faulty message waiting lamps on specified shelf (not applicable from X11 Release 5.24 and later).
- test Message Waiting Lamps (MWL) on 2500 sets during midnight routines (Release 8 and later)

- print set and card IDs on superloops
- convert packed TNs in hex to the loop, shelf, card, unit format

Note 1: Disabled DID trunks are placed in the answer state while disabled.

Note 2: If Recorded Telephone Dictation (RTDT) cards are to be software enabled or disabled, the Out-of-Service (OS) lead should be connected to ground. On completion of the task, ground can be removed.

Note 3: Card ID information is presented as follows:

CCCCCCCC-RRSSSS

Where:

CCCCCCCC = is the order code

RR = is the release number

SSSS = is the serial number

Note 4: After making any changes to the route data block, IPE TRUNK CARDS MUST BE DOWNLOADED by issuing the ENLC l s c command.

Note 5: When getting the status of a card relating to a trunk error (STAT), the term RVSD may appear with the trunk information. RVSD indicates that the software detected a reversed wired trunk for that unit.

Overlay 32 Linkage

With Release 19 and later software, Overlay programs 10, 11, 20 and 32 are linked, thus eliminating the need to exit one Overlay and enter another. Once one of the aforementioned Overlays has been loaded, it is possible to add, print and obtain the status of a set without having to exit one Overlay and load another.

Input processing has also been enhanced. Prompts ending with a colon (:) allow the user to enter either:

- 1 a question mark (?) followed by a carriage return (<cr>)
This entry will present you with a list of valid responses to that prompt.
- 2 An abbreviated response
The system responds to this entry with the nearest match. If there is more than one possible match, the system responds with SCH0099, the input followed by a question mark, and a list of possible responses. The user can then enter a valid response.

Using Enable/Disable commands

All units on a loop go into maintenance busy mode when disabled using the DISL command. The shelves on a loop must be individually re-enabled via the ENLS command. Any telephones that were in lockout mode show as idle, then go into lockout mode again 30 seconds after any unit on the shelf requests dial tone.

On Option 11 systems, the DISL and ENLL commands are not available. Instead, use the DISS, ENLC, DISC and ENLS commands as described below.

When enabling a network loop serving ISDLIC cards, the ISDLIC cards must be individually disabled then re-enabled to ensure that service is restored to digital telephones. Service may also be restored to digital telephones by disconnecting, and then reconnecting the telephone's line cord.

Note 1: When the Trunk Failure Monitor (TFM) package is enabled, a failed trunk is displayed as BUSY. The enable/disable command does not enable or disable the failed trunk unit (it stays in the BUSY state).

Note 2: When the French Type Approval package (FRTA 197) is enabled then CO trunk units are not busied when they are disabled.

Basic commands

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Basic commands

The following commands are applicable to all machines, except Option 11 systems. See the list of Option 11 commands for further information.

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c (not applicable for Release 22)
CONV tn	Convert packed TN (in hex) to loop, shelf, card and unit format
CONV l s c u	Convert loop, shelf, card and unit format to packed TN (in hex)
CPWD l s c u	Clear directory password for M3000 set M3903, M3904 and M3905 set with Release 24
DISC l s c	Disable specified DTR/MFR card
DISI l s c	Disable specified card when it is idle
DISL loop	Disable network loop
DISR l s c u	Disable specified DTR/MFR card or unit
DISN loop	Disable network card containing specified loop
DISS l s	Disable specified shelf
DISU l s c u	Disable specified unit
DSCT l	Disable automatic background continuity tests for superloop

DSNW loop	Disable network card containing specified loop
DSPS x	Disable Peripheral Signaling card x
DSXP x	Disable controller x and all connected cards
END	Abort current test
ENLC I s c	Enable and reset specified DTR/MFR card
ENLG x	Enable group x
ENLL loop	Enable network loop
ENLN loop	Enable network card with specified loop
ENLR I s c u	Enable specified DTR/MFR card or unit.
ENLS I s	Enable specified shelf
ENLU I s c u	Enable specified unit
ENNW loop	Enable network card with specified loop
ENPS x	Enable PS card x and associated loops
LBSY I s	List TNs of all busy units on specified shelf
LDIS I s	List TNs of all disabled units on specified shelf
LIDL I s	List TNs of all idle units on specified shelf
LLBD I s	List TNs of 500/2500 sets with defective MWLs
LMNT I s	List TNs of all maintenance busy units on specified shelf
MFR I s c u	Test specified MFR card or unit.
MFR I	Test all MFR units on loop I.
MFR <cr>	Test all MFR units
PBXH	Message Waiting lamp maintenance
PBXT ALL	Test all Message Waiting lamps
PBXT I (s c u)	Test Message Waiting lamps on loop (or shelf or card or unit)
SDLC I s c	Get status of specified ISDLC card
SDTR I s c u	List status of specified DTR/MFR card or unit.
SDTR <cr>	List the TN of all disabled DTR/MFR units
STAT	Get status of all configured loops in system
STAT (loop)	Give status of one or all loops
STAT I s	Get idle, busy or disabled status of units on specified shelf
STAT I s c	Get status of specified card
STAT I s c u	Get status of specified unit
STAT NWK loop	Check status of network card with specified loop
STAT PER x	Get status of PS card x
TRK I s c u	Seize specified trunk for outpulsing

Option 11 commands

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
CONV tn	Convert packed TN (in hex) to c u
CONV c u	Convert c u to packed TN (in hex)
CPWD c u	Clear directory password for M3000 set M3903, M3904 and M3905 set with Release 24
DISC card	Disable specified DTR/MFR card
DISI card	Disable specified card when it is idle
DISS x	Disable module
DISU c u	Disable specified unit
END	Abort current test
ENLC card	Enable and reset specified DTR/MFR card
ENLR c u	Enable specified DTR/MFR card or unit.
ENLS x	Enable module
ENLU c u	Enable specified unit
IDC card	Print card ID
IDU c u	Print set ID
LBSY m	List TNs of all busy units in specified module
LDIS m	List TNs of all disabled units in specified module
LIDL m	List TNs of all idle units in specified module
LMNT m	List TNs of all maintenance busy units in specified module
MFR c u	Test specified MFR card or unit.
MFR c	Test MFR units on card c
PBXT c (u), ALL	Test message waiting lamps
SDTR c u	List status of specified DTR/MFR card or unit.
STAT (card)	Get status of specified or all cards
STAT c u	Get status of specified unit
TRK c u	Seize specified trunk for outpulsing

Superloop commands

Note: The Loop level commands are not supported for Option 11 and 11C.

DISL sl	Disable specified superloop
DSCT sl	Disable automatic background continuity tests for a superloop
DSXP x	Disable Controller x and all associated PE cards
ENCT sl	Enable automatic background continuity tests for a superloop
ENLL sl (v)	Enable superloop, download peripheral software version v
ENLL sl	Enable specified Superloop
ENXP x (v)	Enable Controller x and associated PE cards, download software version v
ENXP XPC x (v)	Enable Controller x, do not enable the associated PE cards, download software version v
IDC sl	Print Card ID for superloop and associated Controller(s)
IDC l s c	Print card ID for PE card
IDC sl	Get card id of LCI sl and its associated RCI
IDCS x	Print card ID for all cards on shelf controlled by Controller x
IDU l s c u	Print set ID
LBSY l s	List TNs of all busy units on specified shelf
LDIS l s	List TNs of all disabled units on specified shelf
LIDL l s	List TNs of all idle units on specified shelf
STAT sl	Get status of superloop and separate carriers on that superloop
SUPL (sl)	Print data for one or all superloops
XNTT sl	Do self-test of Network card for specified superloop
XPCT x	Do self-test on Controller x
XPEC (x)	Print data for one or all Controllers

Note: If a trunk unit is controlled by APNSS, the STAT commands will indicate this is an APNSS trunk and will also display the status of the D-channel. The display format remains the same.

ISDN BRI MISP commands

The following commands are available for ISDN Basic Rate Interface Multi-purpose ISDN Signaling Processor (MISP) cards.

DISL loop	Disable MISP loop
DISL (appl) loop	Disable specified application on MISP loop
DISL (appl) loop 1	Disable and remove specified application from MISP loop
DISL (appl) loop REM	Disable and remove specified application from MISP loop
DLIF loop x	Download an UIPE BRI trunk interface data file to an MISP loop
ENLL loop	Enable MISP loop
ENLL loop FDL	Enable specified MISP loop and force download (FDL) basecode
ENLL (appl) loop	Enable specified application on MISP loop
ENLL (appl) loop 1	Enable specified application on MISP loop and force download the application loadware onto the MISP
ENLL (appl) loop FDL	Enable specified application on MISP loop and force download the application loadware onto the MISP
IDC loop	Print MISP card ID
PERR loop	Upload error log for specified MISP
STAT I s	Get idle, busy or disabled status of units on specified shelf
STAT (appl) loop	Get status of MISP loop (and application)

Option 11 BRI MISP commands

DISC card	Disable Multi-purpose ISDN Signaling Processor (MISP) loop
DISC (appl) card	Disable specified application on MISP loop
DISC (appl) card REM	Disable and remove specified application from MISP
DLIF card	Download a UIPE BRI trunk interface data file to MISP card
ENLC card	Enable Multi-purpose ISDN Signaling Processor (MISP) loop
ENLC card FDL	Enable specified MISP card and force download (FDL) basecode
ENLC (appl) card	Enable specified application on MISP card
ENLC (appl) card FDL	Enable specified application on MISP card and force download the application loadware onto the MISP
IDC card	Print MISP card ID
PERR card	Upload error log for specified MISP
STAT (appl) card	Get status of MISP card (and application)

ISDN BRI SILC/UILC commands

The following commands are available for ISDN Basic Rate Interface S/T-Interface line (SILC) or U-Interface line (UILC) cards and the associated Digital Subscriber Loops (DSL).

DIS AUTO s c u	Disable automatic link recovery option of a DSL
DISC s c	Disable S/T-Interface line (SILC) or U-Interface line (UILC) card
DISI s c	Disable specified card when it is idle
DISU s c d	Disable specified Digital Subscriber Loop (DSL) (0-7)
DSRB s c d	Disable Remote Loop Back for specified BRI Trunk DSL
DSTS s c d	Disable Remote Loop Back test mode for specified BRI Trunk DSL
ENL AUTO s c u	Enable automatic link recovery option of a DSL
ENLC s c	Enable S/T-Interface line (SILC) or U-Interface line (UILC) card
ENLU s c d	Enable specified unit Digital Subscriber Loop (DSL) (0-7)
ENRB s c d	Enable Remote Loop Back for specified BRI Trunk DSL
ENTS s c d	Enable Remote Loop Back test mode for the specified BRI Trunk DSL
ESTU s c d	Establish D-channel link for specified DSL
FDIS NCAL < s c DSL#> <conn_ID>	Force disconnect the specified call-independent connection
IDC s c	Print SILC/UILC card ID
PCON s c d	Print configuration and LAPD parameters for specified BRI Trunk DSL
PERR s c	Print protocol log for specified BRI line card
PLOG s c d	Print protocol log for specified BRI Trunk DSL
PMES s c d	Print Layer 3 message log for specified BRI Trunk DSL
PTAB s c d	Upload and print Layer 3 Message configuration IE table for specified BRI Trunk DSL
PTAB s c d <tbl #>	Upload and print specified Layer 3 Message configuration IE table
PTRF s c d	Print traffic data for specified BRI Trunk DSL
RLBT s c d	Perform Remote Loop Back test on specified BRI Trunk DSL
RLSU s c d	Release D-channel link for specified DSL
STAT s c	Get status of specified SILC or UILC
STAT s c d	Get status of specified Digital Subscriber Loop 0-7
STAT NCAL < s c DSL#>	List all current call-independent connections on a given BRIT DSL
STAT NCAL < s c DSL#> <conn_ID>	List information pertaining to a specific call-independent connection

Option 11 BRI SILC/UILC commands

DIS AUTO c d	Disable automatic link recovery option of a DSL
DISC card	Disable S/T-Interface line (SILC) or U-Interface line (UILC) card
DISI card	Disable specified card when it is idle
DISU c u	Disable specified Digital Subscriber Loop (DSL) (0-7)
DSRB c d	Disable Remote Loop Back for specified BRI Trunk DSL
DSTS c d	Disable Remote Loop Back test mode for specified BRI Trunk DSL
ENL AUTO c d	Enable automatic link recovery option of a DSL
ENLC card	Enable S/T-Interface line (SILC) or U-Interface line (UILC) card
ENLU c d	Enable specified unit Digital Subscriber Loop (0-7)
ENRB c d	Enable Remote Loop Back for specified BRI Trunk DSL
ENTS c d	Enable Remote Loop Back test mode for the specified BRI Trunk DSL
ESTU c d	Establish D-channel link for specified DSL
FDIS NCAL <c DSL#> <conn_id>	Force disconnect the specified call-independent connection (as defined by its connection ID number)
IDC card	Print SILC/UILC card ID
PCON c d	Print configuration and LAPD parameters for specified DSL
PERR card	Print protocol log for specified card
PLOG c d	Print protocol log for specified BRI Trunk DSL
PMES c d	Print Layer 3 message log for specified BRI Trunk DSL
PTAB c d	Upload and print Layer 3 Message configuration IE table for specified BRI Trunk DSL
PTAB c d <tbl #>	Upload and print specified Layer 3 Message configuration IE table for specified BRI Trunk DSL
PTRF c d	Print traffic data for specified BRI Trunk DSL
RLBT c d	Perform Remote Loop Back test on specified BRI Trunk DSL
RLSU c d	Release D-channel link for specified DSL
STAT card	Get status of specified SILC or UILC
STAT c d	Get status of specified Digital Subscriber Loop (0-7)
STAT NCAL <c DSL#>	List all current call-independent connections on a given BRIT DSL

ISDN BRI BRSC commands

The following commands are available for the ISDN Basic Rate Signaling Concentrator (BRSC) card, available with X11 Release 19 or later.

DISC BRI s c	Disable the BRSC ISDN BRI application.
DISC (BASE) s c	Disable specified card.
ENLC (BASE) s c (FDL/NST)	Enable specified card.
ENLC BRI s c (FDL)	Enable the BRSC ISDN BRI application.
IDC s c	Print BRSC card and loadware version.
STAT s c	Get status of specified card.

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CMIN	Clear the minor lamp on a system basis.	alarm_filter-22
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c. (not applicable for Release 22)	basic-1
CONV tn, CONV c u	Convert packed TN (in hex) to l s c u, or vice versa. (Option 11)	xpe-15
CONV tn, CONV l s c u	Convert packed TN (in hex) to l s c u, or vice versa. The command format is: <ul style="list-style-type: none"> • CONV tn - convert packed TN • CONV l s c u - convert unpacked TN 	xpe-15
CPWD c u	Clear directory password for M3000 set. (Option 11) M3903, M3904 and M3905 set with Release 24	basic-1
CPWD l s c u	Clear directory password for M3000 set. Allows the M3000 Directory password of the specified M3000 set to be cleared. This allows a user to access the M3000 Directory if the password has been forgotten or if the user wants to change the current password. M3903, M3904 and M3905 set with Release 24	basic-1
DIS AUTO c d	Disable automatic link recovery option of a DSL (Option 11)	bri-18
DIS AUTO l s c u	Disable automatic link recovery option of a DSL.	bri-18
DISC (app) card	Disable application on Multi-purpose ISDN Signaling Processor (MISP). (Option 11). Where: appl =BRIL (Basic Rate Interface Line), BRIT (Basic Rate Interface Trunk), or BRIE (UIPE Basic Rate Interface Trunk)	bri-18

DISC (appl) card REM bri-18
Disable and remove application from Multi-purpose ISDN Signaling Processor (MISP). (Option 11)

Where: appl =BRIL (Basic Rate Interface Line), BRIT (Basic Rate Interface Trunk), or BRIE (UIPE Basic Rate Interface Trunk)

DISC (BASE) l s c bri-18
Disable specified BRSC card. With X11 Release 19 and later, this command is also used to disable the ISDN Basic Rate Interface Signaling Concentrator (BRSC) card.

Where:

- BASE = Disable only the basecode. If not specified, both the basecode and application are disabled. The application is disabled first unless BASE is entered.
- l = loop
- s = shelf
- c = card

The card faceplate LED is turned on to indicate the card is disabled, and the IPC channel is eliminated. The "." prompt is given when the process is complete.

DISC BRI l s c bri-18
Disable the BRSC ISDN BRI application. This command is available with X11 Release 19 and later. Where:

- BRI = the BRSC ISDN BRI application
- l = loop
- s = shelf
- c = card

All active and transient ISDN BRI calls are dropped, and all signaling and packet channels are torn down. The DSL software state remains the same, but the ISDN BRI line cards receive a disable message.

DISC card	<p>Disable specified DTR/MFR card. (Option 11)</p> <p>This command is also used for Multi-purpose ISDN Signaling Processor (MISP).</p> <p>If BRI reference clock source is configured on this SILC the user will be prompted with:</p> <p>CLOCK SOURCE ON DSL #, PROCEED? ,</p> <p>where # = unit 0-7</p> <p><i>For Option 11C:</i> DISC 0 disables all configured units on card 0</p>	basic-1
DISC l s c	<p>Disable specified DTR/MFR card.</p> <p>If BRI reference clock source is configured on this SILC the user will be prompted with:</p> <p>CLOCK SOURCE ON DSL #, PROCEED? ,</p> <p>where # = unit 0-7</p>	basic-1
DISI card	<p>Disable specified card when it is idle. (Option 11)</p> <p>If BRI reference clock source is configured on this SILC the user will be prompted with:</p> <p>CLOCK SOURCE ON DSL #, PROCEED? ,</p> <p>where # = unit 0-7</p>	basic-1
DISI l s c	<p>Disable specified card when it is idle.</p> <p>If BRI reference clock source is configured on this SILC the user will be prompted with:</p> <p>CLOCK SOURCE ON DSL #, PROCEED? ,</p> <p>where # = unit 0-7</p>	basic-1
DISL (appl) loop	<p>Disable application on MISP loop. Where appl =</p> <ul style="list-style-type: none"> • BRIL (Basic Rate Interface Line), or • BRIT (Basic Rate Interface Trunk) • 	bri-18
DISL (appl) loop 1	<p>Disable MISP loop.</p> <p>Where: appl =BRIL (Basic Rate Interface Line), BRIT (Basic Rate Interface Trunk), or BRIE (UIPE Basic Rate Interface Trunk).</p> <p>Applicable if SUPP package 131 is not equipped.</p>	bri-18

DISL (appl) loop (FDL)	<p>Disable MISP application and loop. Where:</p> <ul style="list-style-type: none"> • appl = optional application name (BRIL) • loop = loop number • FDL = force download the application <p>With X11 Release 18, entering 1 rather than FDL force downloads the application.</p>	bri-18
DISL (appl) loop REM	<p>Disable and remove application from Multi-purpose ISDN Signaling Processor (MISP). Applicable if SUPP package 131 is equipped.</p>	bri-18
DISL loop	<p>Disable network loop. See "Using the Enable/Disable commands" in the introduction. This command is also used for superloops and MISPs.</p>	basic-1
DISL sl	<p>Disable specified superloop. Active calls on the superloop will be disconnected and line transfer will occur at the remote end.</p>	basic-21
DISN loop	<p>Disable network card containing specified loop, where "loop" is the number of the even or odd loop. Not applicable to superloops.</p>	
DISR l s c u	<p>Disable specified DTR/MFR card or unit. The LED should be lit on the XMFR card in response to this command.</p>	basic-21
DISS l s	<p>Disables specified shelf. See "Using the Enable/Disable commands" in the introduction.</p>	basic-1
DISS m	<p>Disables specified module. Where: m = 0 for Main or m = 1-4 for Expansion module. (Option 11) See "Using the Enable/Disable commands" in the introduction.</p>	basic-1
DISU BRI l s c	<p>Disable ISDN BRI BRSC card.</p>	brit-19
DISU c d	<p>Disable specified Digital Subscriber Loop (0-7). (Option 11). If BRI reference clock source is configured on the DSL, the user will be prompted with:</p> <p>CLOCK SOURCE ON THIS DSL, PROCEED?</p>	bri-18

DISU c u	Disables specified unit. See "Using the Enable/Disable commands" in the introduction. (Option 11) <i>For Option 11C: 0-15 may be accepted as input for card 0.</i>	basic-1
DISU l s c d	Disable specified Digital Subscriber Loop 0-7. If BRI reference clock source is configured on the DSL the user will be prompted with: CLOCK SOURCE ON THIS DSL, PROCEED?	bri-18
DISU l s c u	Disable specified unit. See "Using the Enable/Disable commands" in the introduction.	basic-1
DLIF card	Download a UIPE BRI trunk interface data file to MISP card (Option 11).	bri-18
DLIF loop x	Download an UIPE BRI trunk interface data file to a MISP loop. The MISP specified must have the BRIT UIPE loadware application. Where x may be: <ul style="list-style-type: none"> • (0) = UIPE SL1 • 1 = ETSI QSIG • 2 = ISO QSIG • . • . • 28 = ETSI QSIG GF • 29 = ISO QSIG GF <p>To achieve a successful download:</p> <ol style="list-style-type: none"> 1. the MISP basecode must be enabled 2. the specified MISP must have the UIPE BRI trunk loadware configured 3. the interface must be inactive (interpret this to mean that either the UIPE BRI trunk application must be disabled or no DSL of this interface type can be enabled) 	bri-18
DSCT loop	Disable automatic background continuity tests for a superloop.	xpe-15
DSIF L PDL2 l s c	Disables the SAPI 16 interface number for BRSC on l s c for the MPH on loop L.	bri-19

LD 32

DSIF L PDL2 L1	Disables SAPI 16 interface number for BRIL on Loop L1 for MPH on loop L.	bri-19
DSIF I s c DSL BCH x	Disables the link interface for B-channel x for DSL I s c bch. Where: x = 1-2	bri-19
DSIF I s c DSL DCH x	Disables the link interface number for USID x for the DSL on I s c dch.	bri-19
DSIF loop PDNI Y	Disable the link interface number Y for PDNI on Loop Y (1-3)	bri-19
DSNW loop	Disable network card containing specified loop, where "loop" is the number of the even or odd loop. Not applicable to superloops.	basic-1
DSPS x	Disables Peripheral Signaling (PS) card x and loops serviced by the card. Disabling PS card 0 interrupts service on loops 0 to 15. To re-enable the card, use the ENPS x command. If this fails, a system initialization may be required. Use the disable command with discretion. Disabling a PS card disables up to 16 loops.	basic-1

The following lists the group/PS/loop relationship:

<u>Group</u>	<u>PS</u>	<u>Loops</u>
0	0	0 to 15
0	1	16 to 31
1	2	32 to 47
1	3	48 to 63
2	4	64 to 79
2	5	80 to 95
3	6	96 to 111
3	7	112 to 127
4	8	128 to 143
4	9	144 to 159

DSRB c d	Disable Remote Loop Back for specified BRI Trunk DSL (Option 11)	bri-18
DSRB I s c d	Disable Remote Loop Back for specified BRI Trunk DSL	bri-18
DSTS c d	Disable Remote Loop Back test mode for specified BRI Trunk DSL (Option 11)	bri-18

DSTS l s c d	Disable Remote Loop Back test mode for specified BRI Trunk DSL	bri-18
DSXP x	Disable Controller x and all connected cards.	xpe-15
ENCT loop	Enable automatic background continuity tests for loop.	xpe-15
END	Abort current test. Stops outputting. Stops current test.	basic-1
ENIF L PDL2 l s c	Enables the SAPI 16 interface number for BRSC on l s c for MPH on loop L.	bri-19
ENIF l s c DSL BCH x	Enables the link interface for B-channel x for DSL l s c bch. Where: x = 1-2	bri-19
ENIF l s c DSL DCH x	Enables the link interface number for USID x for the DSL on l s c dch.	bri-19
ENIF loop PDNI Y	Enables the link interface number Y for PDNI on Loop Y (1-3).	bri-19
ENL AUTO c d	Enable automatic link recovery option of a DSL (Option 11)	bri-18
ENL AUTO l s c u	Enable automatic link recovery option of a DSL.	bri-18
ENLC (appl) card	Enable specified application on Multi-purpose ISDN Signaling Processor (MISP) card. (Option 11). Where: <ul style="list-style-type: none"> • appl = optional application name BRIL (Basic Rate Interface Line) or BRIT (Basic Rate Interface Trunk) 	bri-18
ENLC (appl) card FDL	Enable and force download loadware for specified application on Multi-purpose ISDN Signaling Processor (MISP) card. (Option 11). Where appl = <ul style="list-style-type: none"> • BRIL (optional application name: Basic Rate Interface Line), or • BRIT (Basic Rate Interface Trunk) • 	bri-18
ENLC (BASE) l s c (FDL/NST)		brit-19

Enable specified card.

If the card resides on a disabled shelf, the status is output and enable is not performed. If card has been disabled by overload, the overload status entry is cleared.

Used to enable the ISDN Basic Rate Interface Signaling Concentrator (BRSC) card. The command format is shown here. ENLC (BASE) I s c u (FDL/NST)

Where:

- BASE = enable only the BRSC basecode. If not specified, both the basecode and the application will be enabled.
- I = loop
- s = shelf
- c = card
- FDL = force download the basecode
- NST = No self-test

The card faceplate is turned off to indicate the card is enabled, and the IPC channel is built.

ENLC BRI I s c (FDL)

brit-19

Enable the BRSC ISDN BRI application. Where:

- BRI = the BRSC ISDN BRI application
- I = loop
- s = shelf
- c = card
- FDL = force download the application

The application is force downloaded if:

- FDL is entered, or
- No application currently exists on the BRSC card, or
- There is a version number mismatch between the applications in the software and on the card.

ENLC card	<p>Enable and reset specified DTR/MFR card. (Option 11)</p> <p>If the card resides on a disabled shelf, the status is output and enable is not performed. If card has been disabled by overload, the overload status entry is cleared.</p> <p>This command is also used for Multi-purpose ISDN Signaling Processor (MISP), S/T-Interface (SILC), and U-Interface (UILC) line cards.</p> <p>For Release 21, this command causes the pack to perform a self test. If the pack self test passes, the LED will blink 3 times. If it fails, the LED will be lit solidly. A XMI message will be issued to indicate that the XMFR pack has powered up. This command can be used to enable a XMFR card.</p> <p><i>For Options 11C and 11E:</i> ENLC 0 enables all units (0-15) on card 0 if TDS 0 is already enabled. For Slot 0, the TDS must first be enabled by entering the command ENLX 0 in LD 34.</p>	basic-1
ENLC card FDL	<p>Enable Multi-purpose ISDN Signaling Processor (MISP) and force download basecode.(Option 11)</p>	bri-18
ENLC l s c	<p>Enable and reset specified DTR/MFR card.</p> <p>If the card resides on a disabled shelf, the status is output and enable is not performed. If card has been disabled by overload, the overload status entry is cleared.</p> <p>For Release 21, this command causes the pack to perform a self test. If the pack self test passes, the LED will blink 3 times. If it fails, the LED will be lit solidly. A XMI message will be issued to indicate that the XMFR pack has powered up. This command can be used to enable a XMFR card.</p> <p>This command is also used for the S/T-Interface (SILC) and U-Interface (UILC) line cards.</p>	basic-1
ENLG x	<p>Enable group x. Equivalent to two ENPS commands. Refer to DSPS command for the relationships of groups, PS cards and loops.</p>	basic-1
ENLL (appl) loop	<p>Enable specified application on Multi-purpose ISDN Signaling Processor (MISP) loop. Where appl =</p> <ul style="list-style-type: none"> • BRIL (Basic Rate Interface Line) or • BRIT (Basic Rate Interface Trunk) 	bri-18

ENLL (appl) loop (FDL)	<p>Enable MISP application, and loop. Where:</p> <ul style="list-style-type: none"> • appl = optional application name (BRIL) • loop = loop number • FDL = force download the application <p>For Release 18, entering 1 rather than FDL force downloads the application.</p>	bri-18
ENLL (appl) loop FDL	<p>Enable and force download loadware for specified application on Multi-purpose ISDN Signaling Processor (MISP) loop. Applicable if SUPP package 131 is equipped.</p>	bri-18
ENLL (appl) loop 1	<p>Enable MISP loop. Where:</p> <ul style="list-style-type: none"> • appl = optional application name (BRIL) • 1 = force downloads the application • Applicable if SUPP package 131 not equipped. 	bri-18
ENLL loop	<p>Enable network loop.</p> <p>See "Using the Enable/Disable commands" in the introduction. This command is also used for Multi-purpose ISDN Signaling Processors (MISP).</p>	basic-1
ENLL loop FDL	<p>Enable MISP and force download basecode.</p>	bri-18
ENLL loop (v)	<p>Enable superloop, download peripheral software version v. If version v is not specified, the software downloaded is current (c) or latest (l) version as defined in LD 97.</p>	xpe-15
ENLL sl	<p>Enable specified Superloop. OK is output if the operation is successful.</p>	basic-21
ENLN loop	<p>Enable network card with specified loop, where loop is the even or odd numbered loop on the network card. Not applicable to superloops.</p>	
ENLR c u	<p>Enable the specified DTR/MFR card. (Option 11)</p> <p>Meridian 1 software will issue a message to request XMFR to perform an echo test only when ENLR is issued to enable the XMFR card.</p>	basic-21

ENLR l s c u	<p>Enable the specified DTR/MFR card.</p> <p>Meridian 1 software will issue a message to request XMFR to perform an echo test only when ENLR is issued to enable the XMFR card.</p>	basic-21
ENLS l s	<p>Enable specified shelf. Where: l = loop and s = shelf. If the shelf is disabled by overload, the overload status entry is cleared.</p>	basic-1
ENLS m	<p>Enable the specified module. (Option 11). Where: m = 0 for base module or m = 1-4 for expansion module. If the module is disabled by overload, the overload status entry is cleared.</p>	basic-1
ENLU c d	<p>Enable Digital Subscriber Loop (0-7) (Option 11)</p>	bri-18
ENLU c u	<p>Enable specified unit. (Option 11)</p> <p>ENLU c u accepts units 0-15 as input. Units can only be enabled if TDS 0 is enabled.</p> <p><i>For Options 11E and 11C: For Slot 0, the TDS must first be enabled by entering the command ENLX 0 in LD 34.</i></p>	basic-1
ENLU l s c d	<p>Enable Digital Subscriber Loop (0-7).</p>	bri-18
ENLU l s c u	<p>Enable specified unit.</p> <p>If the unit resides on a disabled shelf or card, the status is output and enable is not performed. If the unit to be enabled is a 500/2500 message waiting telephone, test the unit prior to enabling.</p>	basic-1
ENNW loop	<p>Enable network card with specified loop, where loop is the even or odd numbered loop on the network card. Not applicable to superloops.</p>	basic-1
ENPS x	<p>Enables PS card x and all loops that were enabled at time of last DSPS command. Refer to DSPS command to find the relationships of groups, PS cards and loops.</p>	basic-1
ENRB c d	<p>Enable Remote Loop Back for specified BRI Trunk DSL. (Option 11)</p>	bri-18
ENRB l s c d	<p>Enable Remote Loop Back for specified BRI Trunk DSL.</p>	bri-18

ENTS c d	Enable Remote Loop Back test mode for specified BRI Trunk DSL. (Option 11)	bri-18
ENTS l s c d	Enable Remote Loop Back test mode for specified BRI Trunk DSL.	bri-18
ENXP x (v)	<p>Enable Controller x and associated PE cards, download software version v.</p> <p>Enable all PE cards connected to Controller x and the Controller itself. If version v is not specified, the software downloaded to the Controller is current (c) or latest (l) version as defined in LD 97.</p>	xpe-15
ENXP XPC x (v)	<p>Enable Controller x, do not enable the associated PE cards, download software version v.</p> <p>The cards connected to the Controller are not enabled by this command. If version v is not specified, the software downloaded to the Controller is current (c) or latest (l) version as defined in LD 97.</p>	xpe-15
ESTU c d	Establish D-channel link for the specified Digital Subscriber Loop (0-7). (Option 11)	bri-18
ESTU l s c d	Establish D-channel link for the specified Digital Subscriber Loop (0-7).	bri-18
FDIS NCAL <c DSL#> <conn_id>	<p>Force disconnect the specified call-independent connection (as defined by its connection ID number)</p> <p>Note that the command format for an Option 11C is:</p> <p>STAT NCAL <c 0 0 DSL#><conn_id#></p>	qsig gf-22
FDIS NCAL <l s c DSL#> <conn_id>	<p>Force disconnect the specified call-independent connection (as defined by its connection ID number)</p>	qsig gf-22

IDC card Print MISP or XPE card ID. (Option 11) bri-18

The MISP card ID output format is:

- CARDID: xxx. . . x
- BASECODE VERSION: xxx. . . x
- BRI LINE/TRUNK VERSION: xxx. . . x
- BOOTCODE VERSION: xxx. . . x

The MISP card ID output format is:

- CARDID: xxx. . . x
- BASECODE VERSION: xxx. . . x
- BRI LINE/TRUNK VERSION: xxx. . . x
- BOOTCODE VERSION: xxx. . . x

IDC l s c Print BRSC card and loadware version. brit-19

This command, with X11 Release 19 and later, queries the BRSC card ID, the basecode, and the application version number. Where: l = loop, s = shelf, and c = card.

Output example:

- BOOTCODE VERSION xx . . . x
- BASECODE VERSION xx . . . x
- BRI APPL VERSION xx . . . x

IDC l s c Print MISP or XPE card ID. bri-18

The MISP card ID output format is:

- CARDID: xxx. . . x
- BASECODE VERSION: xxx. . . x
- BRI LINE/TRUNK VERSION: xxx. . . x
- BOOTCODE VERSION: xxx. . . x

The XPE card ID output format is:

=> XXXX CCCCCCCC-RRSSSS

Where:

- XXXX = card type (i.e., XDTR, XUT, etc.)
- CCCCCCCC = order code
- RR = release number
- SSSS = is the serial number

IDC l s c d Print ID of Digital Subscriber Loop 0-7. bri-18

IDC sl

For Copper Connections in Release 21:

xpe-15

Print Network ID and Controller for a superloop.

Output format for superloop card ID:

```

XNET VERS => xxx
RUNNING FROM yyy
FW IS SANE
      CCCCCCCC-RRSSSS

XPEC0 VERS => xxx
RUNNING FROM yyy
FW IS SANE
      XPECz CCCCCCCC-RRSSSS

XPEC1 VERS => xxx
RUNNING FROM yyy
FW IS SANE
      XPECz CCCCCCCC-RRSSSS

```

Where:

- xxx = loadware version
- yyy = RAM or ROM
- z = 2 or 4
- CCCCCCCC = order code
- RR = release number
- SSSS = is the serial number

IDC sl

For Carrier Connections in Release 21:

rem_lpe-21

Get card id of Local Carrier Interface (LCI) superloop and its associated Remote Carrier Interface (RCI).

Output format for LCI superloop card ID:

```

LCI VERS => xxx
FW IS SANE
aaaaaaaaaaaa

```

Output format for RCI superloop card ID:

```

XPEC VERS=>xxx
FW IS SANE
aaaaaaaaaaaa

```

Where:

- xxx = loadware version
- aaaaaaaaaa = contents of ID EEPROM (LCI or RCI)

IDC sl

For Fibre Connections in Release 22:

rem_ipe-22

Print card ID of optical packets and main boards for Fibre superloop and associated Controller(s)

The output format for the superloop card ID including optical packets is:

```
FNET VERS => xxx
```

```
FW IS SANE
```

```
aaaaaaaaaaaaaa
```

```
PRIM: pppppppp
```

```
SEC: ssssssss
```

```
XPEC VERS => xxx
```

```
FW IS SANE
```

```
aaaaaaaaaaaaaa
```

```
PRIM: pppppppp
```

```
SEC: ssssssss
```

Where:

1. xxx = loadware version
2. aaaaaaaaaaaaaa = contents of ID EEPROM (FNET or FPEC)
3. PRIM: pppppppp = contents of ID EEPROM primary packet (if present)
4. SEC: ssssssss = contents of ID EEPROM secondary packet (if present)

IDC l s c

Print card ID for PE card. The format is:

xpe-15

IDC l s c — print ID of specified line card

The format of the card ID is CCCCCCCC-RRSSSS, where:

- CCCCCCCC = order code
- RR = release number
- SSSS = serial number

For example, a Network Card (NT8D04AA) with a release of 01 and serial number of 00001 will have a card ID with:
NT8D04AA-010001

For BRI MISP cards, the output is:

- CARDID: xxx...x
- BASECODE VERSION: xxx...x
- BRI LINE/TRUNK VERSION: xxx...x
- BOOTCODE VERSION: xxx...x

IDCS x	<p>Print card ID for all cards on shelf controlled by Controller x. The card ID for all cards in shelf controlled by Controller x is output. The XPE card ID output format is:</p> <p>=> XXXX CCCCCCCC-RRSSSS</p> <p>Where:</p> <ul style="list-style-type: none"> • XXXX = card type (i.e., XDTR, XUT, etc.) • CCCCCCCC = order code • RR = release number • SSSS = is the serial number 	xpe-15
IDU c d	Print set ID for Digital Subscriber Loop d (0-7) (Option 11)	bri-18
IDU l s c d	Print set ID for Digital Subscriber Loop d (0-7)	bri-18
IDU c u	Print set ID (Option 11)	basic-1
IDU l s c u	<p>Print set ID. Print ID applies to the following set types: M2006, M2008, M2016, M2216 and M2616.</p> <p>The output format of the set ID (M2008 for example) is:</p> <ul style="list-style-type: none"> • ARIES TN: l s c u • TN ID CODE: M2008 • NT CODE: NT2K08WC • COLOR CODE: xx • RLS CODE: xx • SER NUM xxxxxx (X11 Release 18 and later) <p>The color codes are:</p> <ul style="list-style-type: none"> • 03 is black • 35 is chameleon ash • 93 is dolphin grey 	xpe-15
LBSY l s	List TNs of all busy units on specified shelf.	basic-1
LBSY m	<p>List TNs of all busy units in specified module. (Option 11). Where: m = 0 for Base module or 1 for Expansion module.</p>	basic-16
LDIS l s	List TNs of all disabled units on specified shelf.	basic-1
LDIS m	<p>List TNs of all disabled units on specified module. (Option 11). Where: m = 0 for Base module or 1 for Expansion module.</p>	basic-16

LIDL I s	List TNs of all idle units on specified shelf.	basic-1
LIDL m	List TNs of all idle units in specified module. (Option 11). Where: m = 0 for Base module or 1 for Expansion module.	
LLBD I s	Lists TNs of all 500/2500-type units for specified loop and shelf with message waiting lamps seen by the system as defective (not available after Release 5. 24).	basic-1
LMNT I s	List TNs of all maintenance busy units on specified shelf.	basic-1
LMNT m	List TNs of all maintenance busy units on specified module. (Option 11). Where: m = 0 for Base module or m = 1 for Expansion module.	
MFR c	Test all MFR units on card c During the MFR test, faulty MFR/XMFR packs are disabled and MFRxxx error messages are output.	basic-21
MFR c u	Test specified MFR card or unit. During the MFR test, faulty MFR/XMFR packs are disabled and MFRxxx error messages are output.	basic-21
MFR I s c u	Test specified MFR card or unit. During the MFR test, faulty MFR/XMFR packs are disabled and MFRxxx error messages are output.	basic-21
MFR I	Test all MFR units on loop I During the MFR test, faulty MFR/XMFR packs are disabled and MFRxxx error messages are output.	basic-21
MFR <cr>	Test all MFR units During the MFR test, faulty MFR/XMFR packs are disabled and MFRxxx error messages are output.	basic-21
PBXH	Message Waiting lamp maintenance.	basic-1
PBXT (c u), ALL	Tests 500/2500 Message Waiting lamp on specified card or unit. This is required after failed lamp is fixed. (Option 11)	basic-1
PBXT ALL	Test all Message Waiting lamps.	basic-5

PBXT I (s c u)	Tests 500/2500 Message Waiting lamp on specified loop, shelf, card or unit. This is required after failed lamp is fixed.	basic-5
PCON c d	Upload and print configuration and LAPD parameters for specified DSL. (Option 11)	bri-18
PCON I s c d	<p>Upload and print configuration and LAPD parameters for specified DSL. This command requires the specified DSL to be configured for the BRI Trunk Application. See example below:</p> <pre>PCON 6 0 0 6 .DSL: 6 0 0 6 LINL PARAM CONFIRM TIME: 0:02:10 INTERFACE: SL-1 OPER MODE: USR T200: 2 T203: 20 N200: 3 N201: 260 K: 1 PROT #: 1</pre>	bri-18
PERR card	Upload and print Layer 2 error log for specified SILC, UILC or MISP card. (Option 11)	bri-18
PERR loop	Upload and print Layer 2 error log for specified MISP.	bri-18
PERR I s c	<p>Upload and print Layer 2 error log for specified SILC or UILC. This command requires the specified MISP or line card to be configured for the BRIT Application.</p> <p>If error log is requested for a line card the error log for each DSL is printed. If error log is requested for a MISP the application global log is also printed.</p> <p>Interpretation of error logs:</p> <p>1st byte is DSL number or "80" for Application log. 2nd byte is number of non-zero logs.</p> <p>If errors were logged the subsequent information is printed for each error type:</p> <ul style="list-style-type: none"> • 3rd byte is counter type code • 4th byte is "HIGH" byte of count • 5th byte is "LOW" byte of count 	bri-18

Examples follow :

PERR 6

.DSL: 6 0 0 6 ERR LOG CONFIRM TIME: 0:02:10

00 00 01 00 06 00 07 00

^ ^ ^ ^

DSL 0 DSL 1 DSL 6 DSL 7 (no errors
for all DSLs)

PERR 3

.DSL: 5 0 0 2 ERR LOG CONFIRM TIME: 0:02:10

80 01 4D 00 09

Where:

- 1st byte - 80 - indicates Application global log
- 2nd byte - 01 - is number of error logs
- 3rd byte - 4D - is counter type code
- 4th byte - 00 - is "HIGH" byte count
- 5th byte - 09 - is "LOW" byte counts for all DSLs

PLOG c d

Upload and print protocol log for specified BRI Trunk DSL.
(Option 11)

bri-18

PLOG l s c d

Upload and print protocol log for specified BRI Trunk DSL.
The protocol log keeps record of up to 32 protocol types. Only
non-zero counters are uploaded and printed.

bri-18

This command requires the specified MISP or line card to be
configured for the BRIT Application. See example below:

PLOG 6 0 0 6

.DSL: 6 0 0 6 PROTOCOL CONFIRM TIME: 0:02:10

17 117 <--Counter 17 shows 117 SABME frames
received with incorrect C/R bit18 141 <--Counter 18 shows 141 supervisory
frames received with F=119 84 <--Counter 19 shows 84 unsolicited DM
responses with F=1

PMES c d

Upload and print Layer 3 message log for specified DSL.
(Option 11)

bri-18

PMES l s c d	<p>Upload and print Layer 3 message log for specified DSL. This command requires the specified DSL to be configured for the BRI Trunk Application.</p> <p>Each time a valid Layer 3 message is received by the MISP, a counter for that particular message is incremented. The log keeps track of up to 20 message types.</p> <p>Only non-zero items are uploaded and printed. Making trunk calls will create a printable log. In the following example, 2 calls were made:</p> <pre>PMES 6 0 0 6 .DSL: 6 0 0 6 MSG LOG CONFIRM TIME: 0:02:10 ALERT: 2 PROC: 2 CONNECT: 2 DISCONN: 2 REL COP: 2</pre>	bri-18
PTAB c d	Upload and print Layer 3 Message configuration IE table for specified BRI trunk DSL. (Option 11)	bri-18
PTAB l s c d	Upload and print Layer 3 Message configuration IE table for specified BRI trunk DSL. PTAB uploads what was downloaded when the Application was enabled.	bri-18
PTAB c d <tbl #>	<p>Upload and print specified Layer 3 Message configuration IE table for specified BRI trunk DSL.</p> <p>Where: <tbl #> = table number. (Option 11)</p>	bri-18
PTAB l s c d <tbl #>	<p>Upload and print specified Layer 3 Message configuration IE table for specified BRI trunk DSL. PTAB uploads what was downloaded when the Application was enabled.</p> <p>Where: <tbl #> = table number.</p>	bri-18
PTRF c d	<p>Upload and print traffic report for specified BRI Trunk DSL. (Option 11)</p> <p>The following traffic information is output:</p> <pre>CONNECTED NCALLS : Total number of established call-independent connections</pre>	bri-18

PTRF I s c d	<p>Upload and print traffic report for specified BRI Trunk DSL. This command requires the specified DSL to be configured for the BRI Trunk Application. See example below:</p> <pre> PTRF 6 0 0 6 .DSL: 6 0 0 6 TRAFFIC CONFIRM TIME: 0:02:10 PEAK_I_US: 0 <-- Peak link usage (over a 5 second period) for incoming traffic since the last time the traffic data was uploaded. An integer 0 - 100 which represents the percentage of the link capacity used. AVRG_I_US: 0 <-- Average link usage for incoming traffic since the traffic was last uploaded. PEAK_O_US: 0 <-- Peak link usage (over a 5 second period) for outgoing traffic since the last time the traffic data was uploaded. An integer 0 - 100 which represents the percentage of the link capacity used. AVRG_O_US: 0 <-- Average link usage for outgoing traffic since the traffic was last uploaded. TIME: 0 <-- time since last traffic upload query CONNECTED CALL: 2 <-- number of successfully connected trunk calls </pre>	bri-18
RLBT c d	Perform Remote Loop Back Test on specified BRI Trunk DSL. (Option 11)	bri-18
RLBT I s c d	Perform Remote Loop Back Test on specified BRI Trunk DSL.	bri-18
RLSU c d	Release D-channel link for specified Digital Subscriber Loop (0-7). (Option 11)	bri-18
RLSU I s c d	Release D-channel link for specified Digital Subscriber Loop (0-7).	bri-18
RMIF L PDL2 I s c	Disables and removes the SAPI 16 interface number for BRSC on I s c for MPH on loop L.	bri-19
RMIF L PDL2 L1	Disables and removes the SAPI 16 interface number for BRIL on Loop L1 for MPH on loop L.	bri-19
RMIF I s c DSL BCH x	Disables and removes the link interface for B-channel x for DSL I s c bch; where: x = 1-2	bri-19

RMIF loop PDNI Y	Disables and removes the link interface number Y for PDNI on Loop Y (1-3)	bri-19
SDLC I s c	Get status of specified ISDL card.	basic-7
SDTR c u	List status of specified DTR/MFR card or unit.	basic-21
SDTR I s c u	List status of specified DTR/MFR card or unit.	basic-21
SDTR <cr>	List status of all disabled DTR/MFR units	basic-21
STAT	Get status of all configured loops in system	basic-1
STAT (appl) card	Get status of MISP card and application. (Option 11) See STAT (appl) loop for possible responses.	bri-18
STAT (card)	Get status of all cards or (specified card). (Option 11) See STAT (loop) and STAT I s c for possible responses. <i>For Option 11C: STAT 0 provides the status of TDS 0 and units 0-15 for card 0.</i>	basic-1
STAT c d	Get status of specified DSL. (Option 11) See STAT I s c d for possible responses.	bri-18
STAT c u	Get status of specified unit. (Option 11) See STAT I s c u command for possible responses. <i>For Option 11C: STAT c u accepts units 0-15 as input for card 0.</i>	basic-1

STAT (appl) loop **Get status of MISP loop and application.** **bri-18**

If appl = BRIL, the status of the BRI Line application is output.
If appl = BRIT, the status of the BRI Trunk application is output.

Typical response is:

```
loop = MISP loop for non-Option 11
mm DSBL nn BUSY
MISP lll : ENBL ACTIVATED timestamp
BRIL : ENBL
BRIT : ENBL
```

If the card has been manually disabled, the response is:

```
loop = MISP loop for non-Option 11
DISABLED RESPONDING
MAN DSBL
```

If the card has been disabled by the system, the response is:

```
loop = MISP loop for non-Option 11
DISABLED RESPONDING
SYS DSBL - aaa...a
```

Where aaa...a is the reason as follows:

- a** BOOTLOADING = basecode is being downloaded to the MISP
- b** FATAL ERROR = MISP has a serious problem
- c** OVERLOAD = MISP overload (card inoperable)
- d** RESET THRESHOLD = too many resets (card inoperable)
- e** SELF TESTING = card is performing self-test
- f** SELFTEST FAILED = self-test failed
- g** SELFTEST PASSED = successfully completed self-test
- h** SHARED RAM TEST FAILED = MISP memory problem (card inoperable)
- i** STUCK INTERRUPT = MISP hardware failure (replace card)

With the STAT BRIL or STAT BRIT option, the response is one of the following:

1. APPLICATION ENBL
2. APPLICATION NOT CONFIGURED
3. APPLICATION NOT RESPONDING
4. APPLICATION MAN DSBL (manually disabled)
5. APPLICATION SYS DSBL - aaa...a (system disabled)

Where: aaa...a is the reason as follows:

- a CLOSED = application is closed by basecode on the card
- b CLOSED ERR = error in closing the application
- c CORRUPTED = application is corrupted on the card
- d DOWNLOADING = application is being downloaded
- e ENABLED = application is in active state
- f INACTIVE = application is in inactive state
- g MNT BUSY = application is in maintenance busy state
- h WAIT DSBL = application is in process of being disabled
- i WAIT ENABLE = application is in process of being enabled
- j WAIT ERASE = application is being erased from the card
- k WAIT REMOVE = application is being removed from the card

STAT (loop)

Give status of one or all loops. Response is one of the following:

basic-1

1. x BUSY, y DSBL = loop enabled with x channels busy and y channels disabled.
2. UNEQ = loop unequipped.
3. CTYF: 11 12 = loop specified in STAT command is unable to receive data from loops 11, 12, etc. (i.e., continuity test failed in most recent LD 45 loop test). Probable fault in network card.
4. DSBL: NOT RESPONDING = loop disabled. Network card not responding. Card missing, disabled by switch or faulty.

5. DSBL: RESPONDING = loop disabled but the network card responds. loop may have been disabled due to:
- a manual request (DISL)
 - b associated Peripheral Signaling card being disabled
 - c overload condition on associated loop

Note 1: Overload conditions are indicated by OVD messages. An attempt to enable a loop which was disabled due to overload may result in a recurrence of the overload condition: the system's service may be impaired for about 2 minutes.

Note 2: For MISP loops see STAT (appl) loop command.

STAT I s	Get idle, busy or disabled status of units on specified shelf. Displays number of units idle, busy, disabled and maintenance busy for the specified shelf.	basic-1
STAT I s c	<p>Get status of any specified PE/IPE card. (e.g., digital line, analog, DTR, etc.)</p> <p>When getting the status of a card relating to a trunk error (STAT), the term RVSD may appear with the trunk information. RVSD indicates that the software has detected a reversed wired trunk for that unit.</p> <p>When getting the status of a card where ACD sets are defined, the printout will include MSB LOG OUT, MSB LOG IN, LOG IN, OR LOG OUT, according to the ACD set state.</p> <p>The output format for either a <i>S/T-Interface line card (SILC)</i> or an <i>U-Interface line card (UILC)</i> is:</p> <p>For BRI trunks:</p> <p>l1 = UNIT II = DSL/UNIT number on the card =</p> <pre>swstate type L2_state L1_state dch_state clk (mode)</pre> <p>For BRI lines:</p> <p>l1 = UNIT II = DSL/UNIT number on the card =</p> <pre>swstate type L2_state L1_state</pre> <p>If you are analyzing a <i>SILC</i> or an <i>UILC</i> card, Table 16 on page 135 lists and defines output fields and field responses. An output example can be found page 134.</p>	bri-18

The output format for an *ISDN BRI card* is:

brsc/basic-19

loop = UNIT sw_state DSL misp_state LC_state

With ISDN BRI BRSC cards, the basecode and application status are output.

APPLICATION TIME	MAIN STATE	SUB STATE/ACTIVATION
BASECODE	ENABLED	xx/xx/xx x:xx
BRI	ENABLED	xx/xx/xx x:xx
IDLE 0	BUSY 0	DISABLED 8
TOTAL DSLS CONFIGURED 8		

If you are analyzing an *ISDN BRI card*, see "STAT l s c d" command for a list of possible states.

Output Example:

```

00 = UNIT 00 = IDLE LINE   ESTA UP
01 = UNIT 01 = IDLE TRNK  ESTA UP           ESTA SREF (TE)
02 = UNIT 02 = IDLE LINE   ESTA DOWN
03 = UNIT 03 = UNEQ
04 = UNIT 04 = UNEQ
05 = UNIT 05 = UNEQ
06 = UNIT 06 = DSBL TRNK DSBL UNEQ RLS      (NT)
07 = UNIT 07 = DSBL TRNK DSBL UNEQ RLS      (TE)

```

Table 16: STAT I s c Field and Response Definitions

Field	Field Definition	Response	Response Definition
swstate	state of DSL/UNIT in software	IDLE BUSY UNEQ MBSY	no active call active with a call unequipped maintenance busy
type	DSL type	LINE TRNK	BRI line BRI trunk
L2_state	Layer 2 state of DSL/UNIT in MISP loadware	UNEQ IDLE BUSY MBSY DSBL ESTA RLSU TEST RLBT APDB MPDB MPNR UTSM	unequipped no active call active with a call maintenance busy disabled D-channel link is established D-channel link is released test mode remote loop back application disabled associated MISP disabled associated MISP not responding unable to send message to MISP
L1_state	Layer 1 state of line card	UNEQ DOWN LCNR UP UNDN XPDB UTSM	unequipped Layer 1 is down line card not responding Layer 1 is up undefined DSL state Associated XPEC is disabled unable to send message to MISP
dch_state	State of D-channel link in software	ESTA RLSU TEST-IDLE TEST-RLBT	D-channel link is established D-channel link is released test mode idle test mode remote loop back
clk	Clock mode	DSBL PREF SREF	disabled primary reference secondary reference
mode	Layer 1 mode of DSL	NT TE	Network Termination Terminal Equipment

STAT l s c d

Get status of specified Digital Subscriber Loop (0-7).

bri-18

When getting the status of an unit where ACD sets are defined, the printout will *not* include MSB LOG OUT, MSB LOG IN, LOG IN, OR LOG OUT, according to the ACD set state.

If SUPP package 131 is not equipped, The output format is:

```
DSL sw_state misp_state lc_state B1 status
B2 status
```

If SUPP package 131 is equipped, the output format is:

```
DSL type: swstate L2_state L1_state dch_state
clk b1_state b2_state
```

Table 17 defines output fields. Table 18 on page 137 lists and defines possible responses. when SUPP package 131 *is not* equipped. Table 19 on page 138 lists and defines possible responses when SUPP package 131 *is* equipped.

Table 17**STAT l s c d Field Definitions**

Field	Definition
sw_state	DSL software state
misp_state	DSL state on the MISP card
lc_state	DSL state on the BRI line card
swstate	State of DSL/UNIT in software
L2_state	Layer 2 state of DSL/UNIT in MISP loadware
L1_state	Layer 1 state of line card
dch_state*	State of D-channel link in software
clk*	Clock mode
b1_state	State of first B-channel
b2_state	State of second B-channel
* these fields are output only for BRI trunks	

Table 18

STAT I s c d Response Definitions: SUPP package 131 is not equipped

Response	Definition
APDB	MISP call application is disabled
BUSY	Call is active
DOWN	Link layer is not established
DSBL	DSL is disabled
ESTA	Link layer is established
IDLE	No active calls
LCNR	Line card is not responding
MBSY	DSL is in maintenance busy mode
MPDB	MISP is disabled
MPNR	MISP not responding or message is lost
NTAN	DSL is not assigned to a MISP
RLS	Link layer is not established
UNDN	DSL is in an undefined state
UNEQ	Unequipped
UP	Link layer is established
UTSM	CPU is unable to send message to MISP or line card
XTDB	Superloop is disabled
XPDB	Controller is disabled

Table 19: STAT I s c d Response Definitions when SUPP package 131 is equipped

Field	Response	Definition
type	LINE	BRI line
	TRNK	BRI trunk
swstate	IDLE	no active call
	BUSY	active with a call
	UNEQ	unequipped
	MBSY	maintenance busy
L2_state	UNEQ	unequipped
	IDLE	no active call
	BUSY	active with a call
	MBSY	maintenance busy
	DSBL	disabled
	ESTA	D-channel link is established
	RLSU	D-channel link is released
	TEST	test mode
	RLBT	remote loop back
	APDB	application disabled
	MPDB	associated MISP disabled
	MPNR	associated MISP not responding
	UTSM	unable to send message to MISP
L1_state	UNEQ	unequipped
	DOWN	Layer 1 is down
	LCNR	line card not responding
	UP	Layer 1 is up
	UNDN	undefined DSL state
	XPDB	associated XPEC is disabled
	UTSM	unable to send message to MISP
dch_stat e	ESTA	D-channel link is established
	RLSU	D-channel link is released
	TEST-IDLE	test mode idle
	TEST-RLBT	test mode remote loop back
(Part 1 of 2)		

Table 19: STAT I s c d Response Definitions when SUPP package 131 is equipped

Field	Response	Definition
clk	DSBL	disabled
	PREF	primary reference
	SREF	secondary reference
b1_state	UNEQ	unequipped
	BUSY	active with a call
	DSBL	disabled
	MBSY	maintenance busy
	IDLE	no active call
b2_state	UNEQ	unequipped
	BUSY	active with a call
	DSBL	disabled
	MBSY	maintenance busy
	IDLE	no active call
(Part 2 of 2)		

STAT l s c u

Get status of specified unit. Table 20 on page 140 lists and defines possible responses to STAT lscu. The response may be normal, abnormal, or caused by an invalid equipment choice.

basic-1

Table 20
STAT lscu Responses

Type	Response	Definition
Normal	IDLE	Idle
	MBSY	Maintenance busy
	DSBL	Disabled
	DSBL	Virtual terminal on Meridian 1 / Meridian SL-1 disabled by Server
	BUSY	In use by call processing
	BUSY BARRED	Barring is applied to trunk with BARA Class of Service
	UNEQ	Terminal not defined in software
	L500	Line is 500/2500 type
	MBCS	Maintenance set
	BCS	Normal SL-1 telephone
	TRK	Trunk
	ATTN	Attendant console
	DTR	Digitone Receiver
	PWR	Console power unit
Abnormal	CARD x DSBL (OVD)	Card x disabled due to overload
	DND xxx xxx	Do Not Disturb feature is active
	SHELF DSBL (OVD)	Shelf disabled due to overload
	SIG FAULT	Outgoing signal fault detected on PS card under examination.
	WARNING: CRPTR NOT IN RANGE	TN's data is corrupted. Check BUG messages relating to the TN.
Responses caused by invalid equipment choice:		
	EXT DSBL	Extender disabled
	LOOP NOT TERM	Loop is not a terminal loop
	LOOP UNEQ	Loop is unequipped
	SHELF UNEQ	Shelf is unequipped
	SHELF UNEQ	No 500 cards on shelf
	W/PBX CARDS	
	CARD UNEQ	Card is unequipped
	CARD NOT PBX	Card is not a PBX card
	UNIT UNEQ FOR MW	Unequipped for Message Waiting
	PER UNEQ	PS card is unequipped
	UNIT UNEQ	Unit is unequipped

STAT NCAL <c DSL#>

qsig gf-22

List all current call-independent connections on a given BRIT DSL. (Option 11)

The response format is as follows:

- NCALL CONN ID: a number in the range of 1-9999 that identifies the call independent connection on a given DSL
- CREF: call reference number in HEX identifying independent connection
- STATE: current state of all call-independent connections (IDLE, CONN_REQ, CONN_EST)
- TIME: year month day hour:minute:second (the time when call independent connection request is made)
- APPL: applications using the call-independent connection (e.g., NACD, NMS,...)
- ORIG: originator
- DEST: destination

Note that the command format for an Option 11C is:

STAT NCAL <c 0 0 DSL#>

STAT NCAL <l s c DSL#>

qsig gf-22

List all current call-independent connections on a given BRIT DSL.

The response format is as follows:

- NCALL CONN ID: a number in the range of 1-9999 that identifies the call independent connection on a given DSL
- CREF: call reference number in HEX identifying independent connection
- STATE: current state of all call-independent connections (IDLE, CONN_REQ, CONN_EST)
- TIME: year month day hour:minute:second (the time when call independent connection request is made)
- APPL: applications using the call-independent connection (e.g., NACD, NMS,...)
- ORIG: originator
- DEST: destination

To enter this command, QsigGF package 305 is required.

STAT NCAL <l s c DSL#> <conn_ID>

qsig gf-22

List information pertaining to a specific call-independent connection (as defined by its connection ID)

The response format is as follows:

- NCALL CONN ID: a number in the range of 1-9999 that identifies the call independent connection on a given DSL
- CREF: call reference number in HEX identifying independent connection
- STATE: current state of all call-independent connections (IDLE, CONN_REQ, CONN_EST)
- TIME: year month day hour:minute:second (the time when call independent connection request is made)
- APPL: applications using the call-independent connection (e.g., NACD, NMS,...)
- ORIG: originator
- DEST: destination

To enter this command, QsigGF package 305 is required.

STAT NWK loop

basic-1

Check status of network card with specified loop, where loop is the even or odd numbered loop on the network card.

STAT PER x

basic-1

Get status of PS card x.

If the PS card is disabled, the response is changed from DSBL to either:

1. DSBL: NOT RESPONDING = PS card x is either missing, faulty or disabled via the faceplate switch.
 - If there is a fault in the extender pair for the network shelf, the status of the PS card will also be:
DSBL: NOT RESPONDING.
2. DSBL: RESPONDING = The PS card is disabled and responding to the CPU. The PS may have been disabled by manual request (DSPS) or the associated extender pair may have been manually disabled.

If neither of these conditions exists, the card may have been disabled because of an overload condition on the associated shelf. Check for OVD messages appearing in previous TTY output.

An attempt to enable a PS card which was disabled because of an overload may result in a recurrence of the overload condition: the system's service may be impaired for approximately 2 minutes.

STAT sl	Get current status of superloop and separate carriers on that superloop, based on data previously sent by the Carrier Interface F/W (LCIM).	rem_ipe-21
	For each carrier, the following fields will be displayed: S/W State, SPARE Status, NND Status, TSA (Time Slot Availability) and CALS. TSA = Number of Traffic Timeslots currently available for voice and data calls out of a possible: 21 for T-1 and 27 for T-E. SPARE Status indicates whether the carrier is spared and which carrier it is spared in. NND Status indicates whether new data calls are disallowed on the timeslots being transmitted by the carrier.	
STIF L PDL2 l s c	Displays link status for SAPI 16 interface of BRSC l s c for MPH on loop L.	bri-19
STIF L PDL2 L1	Displays the link status for SAPI 16 interface of BRIL L1 for MPH on loop L.	bri-19
STIF l PDNI y	Displays the link status for interface Y for PDNI. Where: Loop Y = 1-3	bri-19
STIF l s c DSL DCH x	Displays the link status for B-channel X for the DSL l s c D. Where: BCH stands for B-channel and X = 1-2.	bri-19
SUPL (loop)	Print data for all or specified superloop(s).	xpe-15
TRK c u	Seize specified trunk for outpulsing. (Option 11)	basic-1
TRK l s c u	Seize specified trunk for outpulsing. Command is valid at a maintenance telephone only. The specified trunk is connected to the maintenance telephone and a test call may be performed on the trunk. When the test call is completed, access sequence SPRE 91 must be redialed to use the maintenance telephone to input more commands.	basic-1

LD 32

Page 144 of 472 Alphabetical list of commands

XNTT loop	Do self-test of Network card for specified superloop. The Network card must be disabled before the self-test.	xpe-15
XPCT x	Do self-test on Controller x. The NT8D01 Controller must be disabled before the self-test.	xpe-15
XPEC (x)	Print data for all or specified Controller(s).	xpe-15

LD 33: Peripheral Equipment Diagnostic for 1.5 Mb/s RPE and Fibre Remote IPE

This module contains commands to perform diagnostic tests of 1.5 Mb/s remote peripheral equipment and fibre remote intelligent peripheral equipment.

Note: Program 33 is not supported on Option 11 systems.

1.5 Mb/s RPE diagnostic

The 1.5 Mb/s Remote Peripheral Equipment Diagnostic (RPD) is loaded manually or as one of the daily routines. It should be included in the daily routines for any system having Remote Peripheral Equipment (RPE).

Program operation during daily routines

When loaded as part of the daily routines, the program will, for each RPE loop in the system:

- reset internal counts of carrier failures which are used to determine whether carriers should be automatically re-enabled if a temporary carrier fault occurs
- test the connection memory on the local network pack
- test the signaling channel to the Local Carrier Buffer (LCB) pack
- test the connection memory of the Remote Peripheral Switch (RPS) pack
- test the continuity of the speech path to the remote site using all idle channels
- switch the primary carrier function from the current primary carrier to the other one, then repeat the above tests

If faults are detected during the above tests, the primary carrier is selected to give the greatest number of working speech timeslots, provided that the signaling channel works on this carrier.

Purpose of 1.5 Mb/s RPE commands

When loaded manually, the program may be used to:

- conduct a test of a specific RPE loop, similar to the automatic tests
- enable or disable a RPE loop, or either carrier associated with a RPE loop
- enable or disable the automatic carrier status monitoring function on a RPE loop
- give timeslot numbers of speech channels which could not be successfully transmitted by a specified carrier
- switch the primary carrier function from one carrier to the other
- obtain the status of RPE loops and/or carriers
- obtain a list of equipped RPE loops
- clear minor alarms and the maintenance display on the active CPU

Speech timeslots used by each carrier

If primary carrier = 0

- Speech channels carried by primary carrier = 4, 5, 6, 7, 10, 11, 12, 13, 14, 15, 20, 21, 22, 23, 26, 27, 28, 29, 30, 31
- Speech channels carried by secondary carrier = 2, 3, 8, 9, 16-19, 24, 25

If primary carrier = 1

- Speech channels carried by primary carrier = 2, 3, 4, 5, 8, 9, 10, 11, 16, 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, 29
- Speech channels carried by secondary carrier = 6, 7, 12, 13, 14, 15, 22, 23, 30, 31

Fibre Remote IPE diagnostic

The craftsperson may complete any of the following Fibre Remote IPE maintenance operations:

- 1 Enable or disable optical packlets.
- 2 Manually invoke protection switching, at the local or remote side.
- 3 Query status of cards and optical packlets.
- 4 Conduct the loop-back test on the optical receiver-transmitter (EOI) to determine the source of the fault as being the optical fibre span or Fibre remote equipment.
- 5 Run loopback test and continuity tests on optical interface.

Midnight routine operation

Overlay 33 can be scheduled to run at midnight if included in midnight routines. The following actions take place during midnight operation:

- 1 Send Time of Day message to loadware (L/W).
 - 2 Print performance monitoring report.
 - 3 Run non-service-impacting test on the standby link.
 - 4 Run MNSN and MNSP commands to cause protection switching. When these commands are run, continuity tests check both links alternately.
-

Basic commands for 1.5 Mb/s RPE

CDSP	Clears the maintenance display on active CPU to 00 or blank
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Resets minor alarm indication on attendant consoles for all customers
CMIN c	Resets minor alarm indication on attendant consoles for customer c (not applicable for Release 22)
DISC loop c	Disable carrier c on RPE loop
DISI loop c	Disable carrier c on RPE loop when idle
DISL loop	Disable specified RPE loop
DISM loop	Disable carrier status monitoring on RPE loop
END	Abort current command
ENLC loop c	Enable carrier c on RPE loop
ENLL loop	Enable RPE loop
ENLM loop	Enable carrier status monitoring on RPE loop
LDIS loop c	List all speech channels that failed continuity test on RPE loop carrier c
LOOP loop	Perform various tests on RPE loop
LRPE	List all equipped RPE loops
NCAR loop	Get number of "carrier status change" messages for RPE loop
SCAR loop	Switch primary carrier on RPE loop
STAT	Get number of busy channels on specified carrier in the active DISI request
STAT loop	Get status of RPE loop
STAT loop ALL	Get status of the RPE loop, carriers and RPS card
STAT loop c	Give status of carrier c on RPE loop
STAT loop RPS x	Get status of RPS card x on specified RPE loop

Basic commands for Fibre Remote IPE

AHIN sl	Print all history file (log file) of Fibre superloop sl
AHIP pc	Print all history file of Fibre Peripheral Controller pc
CDSP	Clears the maintenance display on active CPU to 00 or blank
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Resets minor alarm indication on attendant consoles for all customers
CLPM sl	Clears all performance monitoring counters of Fibre superloop sl (FNET) and its associated FPEC
DSOP sl PRI	Disable optical link of Fibre superloop sl, link Primary
DSOP sl SEC	Disable optical link of Fibre superloop sl, link Secondary
ENOP sl PRI	Enable optical link of Fibre superloop sl, link Primary
ENOP sl SEC	Enable optical link of Fibre superloop sl, link Secondary
FDEF sl	Query default MMI mode on FNET and FPEC of Fibre superloop sl
FNET ALL	Print current status of all Fibre superloops
FNET sl	Print status of Fibre superloop sl (FNET) and its optical packets
FNTT sl	Test specified Fibre superloop sl (FNET)
FPCT pc	Test specified Fibre peripheral controller pc (FPEC)
FPEC pc	Print status of Fibre peripheral controller pc (FPEC) and its optical packets
FSTA sl	Print the transmission test status of Fibre superloop sl
FSTP sl	Stop the transmission test. Print test status of Fibre superloop sl.
FTST sl test (h/m/s)	Perform a transmission test of Fibre superloop sl for time h/m/s
MNSN sl	Manual switch on Fibre superloop sl (FNET)
MNSP sl	Manual switch on Fibre peripheral controller pc (FPEC)
NHIN sl	Print new history file of Fibre superloop sl (FNET)
NHIP pc	Print new history file of Fibre peripheral controller pc (FPEC)
PRPM sl	Print performance monitoring report for Fibre superloop sl (FNET) and its associated FPEC
SDEF sl LOC	Set default MMI mode on FNET and FPEC of Fibre superloop sl: MMI mode (Local)
SDEF sl REM	Set default MMI mode on FNET and FPEC of Fibre superloop sl: SL-1 mode (Remote)

Alphabetical list of commands

Command	Description	Pack/Rel
AHIN sl	Print all history file (log file) of Fibre superloop sl.	rem_ipe-22
AHIP pc	Print all history file of Fibre Peripheral Controller pc.	rem_ipe-22
CDSP	Clears the maintenance display on active CPU to 00 or blank.	rpe-1
CLPM sl	Clears all performance monitoring counters of Fibre superloop sl (FNET) and its associated FPEC.	rem_ipe-22
CMIN	Clear the minor lamp on a system basis.	alarm_filter-22
CMIN ALL	Resets minor alarm indication on attendant consoles for all customers.	rpe-1
CMIN c	Reset minor alarm indication on attendant consoles for customer c (not applicable for Release 22).	rpe-1
DISC loop c	Disable carrier c on RPE loop. Any active calls using this carrier will be disconnected.	rpe-1
DISI loop c	Disable carrier c on RPE loop when idle. Disables the carrier as soon as it has become idle. The number of channels still busy on the carrier may be checked using the STAT command. The message RPD018 indicates that the disable operation is complete.	rpe-1
DISL loop	Disable specified RPE loop. Any active calls on the loop are disconnected and line transfer occurs at the remote end.	rpe-1
DISM loop	Disable carrier status monitoring on RPE loop. Carrier failures are not detected while this command is in effect. The command is canceled by the ENLM or ENLL commands.	rpe-1
DSOP sl PRI	Disable optical link of Fibre superloop sl, link Primary. If that link is active, protection switching occurs. If protection switching is not available, and the FNET is enabled, the command is refused.	rem_ipe-22

DSOP sl SEC	Disable optical link of Fibre superloop sl, link Secondary. If that link is active, protection switching occurs. If protection switching is not available, and the FNET is enabled, the command is refused.	rem_ipe-22
END	Abort current command. If no command is in progress, the active DISI command (if any) is canceled.	rpe-1
ENLC loop c	Enable carrier c on RPE loop. If the operation is successful, OK is output.	rpe-1
ENLL loop	Enable RPE loop. Implies ENLM also. If the operation is successful, OK is output. If the loop is already enabled, RPD007 is output.	rpe-1
ENLM loop	Enable carrier status monitoring on RPE loop.	rpe-1
ENOP sl PRI	Enable optical link of Fibre superloop sl, link Primary. The command fails if the packet is not physically there.	rem_ipe-22
ENOP sl SEC	Enable optical link of Fibre superloop sl, link Secondary. The command fails if the packet is not physically there.	rem_ipe-22
FDEF sl	Query default MMI mode on FNET and FPEC of Fibre superloop sl. The system response is: FNET: L/R FPEC: L/R Where: L = local and R = remote	rem_ipe-22
FNET ALL	Print current status of all Fibre superloops. The same as FNET sl but repeated for all Fibre superloops in the system.	rem_ipe-22

FNET sl

Print status of Fibre superloop sl (FNET) and its optical packets. The first line prints the general status of the card and includes:

rem_ipe-22

1. enable/disable status (known by Software)
2. PLL status
3. NNDC (indicates that new data calls are disallowed on this superloop)

The next two lines print the status of the packets:

1. enable/disable status (known by Firmware)
2. activity (if selected as active for incoming voice/data)
3. ALM_LVL - alarm level
4. ALM_EOI - alarm Electro-Optical Interface (EOI)

Presented below is an example of this general Output format, showing possible values. Bold characters indicate fixed titles.

FNET: n	enabled/disabled	locked/unlocked	NNDC/ <blank>	
PACKLETS:	F/W State	Activity	ALM_LVL	ALM_EOI
Primary:	enabled	RCV	unequipped	Rx
	disabled	idle	S.F.	Tx
	transmission tested		S.D.	Rx Tx
			No alarm	No alarm
Secondary:	enabled	RCV	unequipped	Rx
	disabled	idle	S.F.	Tx
	transmission tested		S.D.	Rx Tx
			No alarm	No alarm

Where:

1. unequipped = the optical packet is physically absent. Firmware treats this as Signal Fail.
2. S.F. = Signal Fail = Out of service. Loadware either switches to the other link or declares "No active link" if Protection Switching (PS) was not possible.
3. S.D. = Signal Degradation = Deteriorated performance. Firmware either switches to the other link, or else the data calls are disallowed if Protection Switching (PS) was not possible. Software handles this state as NNDC.
4. Rx = Receiver alarm
5. Tx = Transmitter alarm

FNTT sl	<p>Test specified Fibre superloop sl (FNET). The Firmware performs a self-test of hardware components and reports results to software. Optical packlets, if present, are also tested.</p> <p>If the FNET is enabled, only the non-active packlet is tested without affecting service.</p> <p>The response may be:</p> <p>TEST PASSED or TEST FAILED REASON <reason#></p>	rem_ipe-22
FPCT pc	<p>Test specified Fibre peripheral controller pc (FPEC). The Firmware performs a self-test of hardware components and reports results to software. Optical packlets, if present, are also tested.</p> <p>If the FPEC is enabled, only the non-active packlet is tested without affecting service.</p> <p>The response may be:</p> <p>TEST PASSED or TEST FAILED REASON <reason#></p>	rem_ipe-22
FPEC pc	<p>Print status of Fibre peripheral controller pc (FPEC) and its optical packlets. The first line prints the general status of the card. The next two lines print the status of the packlets. See FNET description for more detail.</p>	rem_ipe-22
FSTA sl	<p>Print the transmission test status of Fibre superloop sl.</p>	rem_ipe-22
FSTP sl	<p>Stop the transmission test. Print test status of Fibre superloop sl.</p>	rem_ipe-22

FTST sl test (h/m/s)

rem_ipe-22

Perform specified transmission test of Fibre superloop sl for time tm. Where:

1. test = 1 for FNET primary packet ; 2 for FPEC primary packet ; 3 for FNET secondary packet ; 4 for FPEC secondary packet
2. tm = H/M/S = test duration. This field is optional. The duration can be either:
 - a H for hours (1-24)
 - b M for minutes (1-255)
 - c S for seconds (1-255)

If a duration is not entered, then Firmware performs a quick test and reports the results to software. The system response will then be `TEST SUCCESS` or `TEST FAILED`.

If duration is entered, then firmware starts testing and sends an acknowledge message to software. The system response will be `TEST STARTED`.

These transmission tests can only be executed on the standby or disabled link.

LDIS loop c

List all speech channels that failed continuity test on RPE loop, carrier c.

rpe-1

If no channels failed, response is `NONE`. The response is based on the results of the most recent tests (via the `LOOP` command) of the carrier.

LOOP loop	<p>Perform various tests on RPE loop.</p> <p>Performs the following tests:</p> <ol style="list-style-type: none"> 1. tests idle timeslots of network connection memory 2. tests signaling channel to the LCB pack 3. tests idle timeslots of the RPS connection memory 4. tests speech continuity to remote site, using idle channels <p>If all tests pass, system response is OK. Any connection memory or channel faults detected results in the affected channel being disabled.</p> <p>To completely check the loop, this command may be run twice, once with each carrier being primary, by using the SCAR command between tests.</p> <p>This command does not test signaling to PE packs on the loop. To test signaling, use LD 30 or LD 45.</p>	rpe-1
LRPE	<p>List all equipped RPE loops. If no RPE loops exist, the response is NONE.</p>	rpe-1
MNSN sl	<p>Manual switch on Fibre superloop sl (FNET). The FNET loadware switches between the active link and the standby link.</p>	rem_ipe-22
MNSP pc	<p>Manual switch on Fibre peripheral controller pc (FPEC). The FPEC loadware switches between the active link and the standby link.</p>	rem_ipe-22
NCAR loop	<p>Get number of "carrier status change" messages for RPE loop.</p> <p>This outputs the number of messages received from the RPE loop since the most recent running of the midnight routines, initialize or loop enable.</p> <p>Response is:</p> <ul style="list-style-type: none"> • LCB: XX • CAR 0: YY, CAR 1: ZZ <p>The Local Carrier Buffer (LCB) pack gives the total number of messages received. CAR 0 and CAR 1 indicate the number of those messages which indicated a change of state of the corresponding carrier. The count for each carrier is reset when the carrier is manually enabled or at midnight.</p>	rpe-1

	A large number of messages received (particularly on one carrier only), may indicate a transient fault on the affected carrier.	
NHIN sl	Print new history file of Fibre superloop sl (FNET)	rem_ipe-22
NHIP pc	Print new history file of Fibre peripheral controller pc (FPEC)	rem_ipe-22
PRPM sl	Print performance monitoring report for Fibre superloop sl (FNET) and its associated FPEC.	rem_ipe-22
SCAR loop	Switch primary carrier on RPE loop. This command is allowed only if the current non-primary carrier is enabled, and no faults exist on the current non-primary carrier (which would reduce the number of working speech channels if it becomes the primary carrier).	rpe-1
SDEF sl LOC	Set default MMI mode on FNET and FPEC of Fibre superloop sl : MMI mode (Local)	rem_ipe-22
SDEF sl REM	Set default MMI mode on FNET and FPEC of Fibre superloop sl : SL-1 mode (Remote)	rem_ipe-22
STAT	Get number of busy channels on specified carrier in the active DISI request. If no DISI request is active, error code RPD022 is output.	rpe-1
STAT loop	Get status of RPE loop. Response will be one or more of the following: <ol style="list-style-type: none"> 1. x BUSY, x DSBL = number of busy/disabled speech channels on the loop. 2. x NWK MEM FLTS = number of speech channels disabled due to fault in connection memory of network. 3. LCB DSBL = carrier monitoring function of LCB pack disabled 4. CTYF: 11 12 = cannot receive speech from loops l1, l2, etc., based on most recent test run by the background diagnostic (LD 45). 	rpe-1

5. DSBL: RESPONDING = loop is disabled but can still communicate with the CPU. The loop may have been disabled manually, as the result of the disabling of some other pack (e.g., associated Peripheral Signaling pack) or by an overload condition. If the loop was disabled because of overload, the overload condition may recur if the loop is re-enabled.
6. DSBL: NOT RESPONDING = loop is disabled and cannot communicate with the CPU. The Network pack may be missing or faulty, or not responding because of the removal or failure of other packs, e.g., CE extenders.

STAT loop ALL Get status of the RPE loop, carriers and RPS card. rpe-1

Response is:

x BUSY, y DSBL
 CAR 0: x BUSY, y DSBL PRIME
 CAR 1: x BUSY, y DSBL
 RPS: x MEM FLTS

Where:

x BUSY, y DSBL = number of busy and disabled channels for the RPE loop and each carrier (CAR0 and CAR1).

PRIME = indicates which carrier is currently the primary one.

RPS: x MEM FLTS = number of faults in the memory connection of the RPS card.

STAT loop c Give status of carrier c on RPE loop. rpe-1

Response is one or more of:

1. x BUSY, y DSBL = number of busy channels and number of channels having continuity failure on this carrier
2. PRIME = indicated carrier is currently the primary one.
3. DSBL = carrier is disabled.
4. LOOP DSBL = loop is disabled.

STAT loop RPS x rpe-1
 Get status of RPS card x on specified RPE loop.

LD 33

Results are based on the most recent tests. Response is one of:

1. x MEM FLTS = number of faults in the connection memory of the RPS card
 2. NOT RESPONDING = card failed to respond (this message does not necessarily indicate a RPS fault)
 3. LOOP DSBL = loop is disabled.
-

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LD 34: Tone and Digit Switch and Digitone Receiver Diagnostic

This program tests circuit cards used in generating and detecting tones in the Meridian 1/Meridian SL-1 system. If loaded automatically in background or as part of the daily routines, it tests the hardware and performs fault detection and isolation. If invoked manually, commands can be issued to conduct the entire test or only certain parts of the test and to change card status.

The program tests the following circuit cards:

- Tone and Digit Switch (TDS)
- Flexible Tone and Digit Switch
- Digitone Receiver (DTR)
- Tone Detector
- Dial Tone Detector
- Extended Tone Detector (XTD)

TDS circuit card outputters and channels are checked for timing errors, memory faults and Digitone frequency accuracy. Digitone receivers are checked for response to all Digitone frequencies. Tones and outputters are tested from a maintenance set.

Basic commands

The following commands are applicable to all machines, except Option 11 systems. See the list of Option 11 commands for further information.

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DISD l s c	Disable the specified Meridian 1/Meridian SL-1 Tone Detector card
DISD l s c u	Disable specified Dial Tone Detector
DISL loop	Disable tone and digit loop
DISR l s c (u)	Disable specified DTR/MFR card or unit. Applies to DTR or XTD packs.
DISX l	Disable Conf/TDS/MFS card on loop l and l + 1
DTD l s c u	Test specified Dial Tone Detector unit. Applies to DTD and XTD packs.
DTR l s c (u)	Test specified Digitone receiver card or unit. Applies to DTR and XTD packs.
END	Stop execution of current command
ENLD l s c (u)	Enable Tone Detector on specified card or unit
ENLL loop	Enable tone and digit loop
ENLR l s c (u)	Enable the DTR/MFR card or unit. Applies to DTR and XTD packs.
ENLX l	Enable Conf/TDS/MFS card on loop l and l + 1
MFR	Test all Automatic Number Identification Feature Group D Multifrequency receiver units
MFR loop	Test all Automatic Number Identification Feature Group D Multifrequency receiver units on specified loop
MFR l s c (u)	Test Automatic Number Identification Feature Group D Multifrequency card or unit
SDTR l s c (u)	Get status of specified DTR/MFR or XTD card or unit.
STAD	List all disabled Tone Detector units
STAD l s c (u)	Get status of Tone Detector card or unit
STAT	List TNs of all disabled DTRs and MFRs
STAT loop	Get status TDS loop
TDET l s c (u)	Perform self-test and tone detection on specified card or unit
TDS loop	Test outpulsers and channels on specified loop

Option 11 commands

The following commands are applicable to Option 11 systems:

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DISR c (u)	Disable specified DTR/MFR card or unit
DISX c	Disable the TDS/MFS card
DISX I	Disable Conf/TDS/MFS card on loop I and I + 1
DTR c (u)	Test specified Digitone receiver card or unit
END	Stop execution of current command
ENLR c (u)	Enable DTR/MFR card or unit
ENLX c	Enable the TDS/MFS card
ENLX I	Enable Conf/TDS/MFS card on loop I and I + 1
MFR	Test all Automatic Number Identification (ANI) Multifrequency receiver units
MFR c	Test all MFR units on card c (Option 11)
MFR c (u)	Test ANI Feature Group D Multifrequency card or unit (Option 11)
SDTR	List all disabled DTR units
SDTR c (u)	Get status of specified DTR or XTD unit(s) on the CPU, SSTD, or XTD card
STAT	List TNs of all disabled DTRs and MFRs
STAT c	Show TDS status and number of disabled or busy tone transmitter channels.
TDS card	Test outputers and channels

Extended Tone Detector (XTD) commands

The following commands are applicable to the NT5K20 and NT5K48 XTD cards:

DISR I s c (u)	Disable the specified XTD card (or unit)
DTR I s c u	Test the specified XTD unit as a Digitone receiver unit
ENLR I s c (u)	Enable the specified XTD card (or unit)
SDTR	List Terminal Numbers (TN) of all disabled DTR units
SDTR I s c (u)	List the status of the specified XTD card (or unit)

Maintenance telephone commands

The following commands are used from a Maintenance telephone to test and hear the various tones. Both the command and the dial pad equivalents (in parantheses) are shown.

ANNx#loop## (266x#loop##)	basic-6
Provides signals coming through source number x of KAPSCH Digital Announcer or Music Interface. Where loop = Tone and Digit Switch loop number)	
BSY#loop## (279#loop##)	basic-1
Provide busy tone from tone and digit loop.	
C## (2##)	basic-1
Remove any active tone.	
CMP#loop## (267#loop##)	basic-1
Provide Camp-On tone from loop.	
CUST#xx## (2878#xx##)	basic-1
Test outpulsing for customer XX.	
CWG#loop## (294#loop##)	basic-1
Give call waiting tone from loop.	
DIA#loop## (342#loop##)	basic-1
Provide dial tone from tone and digit loop.	
DRNG#loop## (3764#loop##)	basic-1
Provide distinctive ringing from loop.	
ITN#loop## (486#loop##)	basic-1
Provide intrusion tone from loop.	
JDRG#loop## (5374#loop##)	basic-8
Provide distinctive ringing from loop.	
JIDT#loop## (5438#loop##)	basic-8
Provide interrupted dial tone from loop.	
OPS#loop#x## (677#loop#x##)	basic-1
Test outpulsing from Meridian 1/Meridian SL-1 to idle trunk.	

LD 34

ORD#loop## (673#loop##) Provide override tone from loop.	basic-1
OVF#loop## (683#loop##) Provide overflow tone from loop.	basic-1
PCRT#loop## (7278#loop##) Test the Paid Call Restriction (PCR) tone after the TABL command.	pcr-7
RBK#loop## (725#loop##) Provide ringback tone from loop.	basic-1
RNG#loop## (764#loop##) Provide ring tone from loop.	basic-1
SDL#loop## (735#loop##) Give special dial tone from loop.	basic-1
TABL#xx## (8225#xx##) Select table number xx. If this command is not issued before any tone request command, then table 0 is assumed (Generic X11 with supplementary features).	basic-1
TLP#loop## (857#loop##) Provide tone to last party from the tone and digit loop.	basic-4
TST#loop## (878#loop##) Provide test tone from loop.	basic-1
XCTT#loop##t#c## (9288#loop##t#c##) Test tone and cadence number on Conference/TDS/MFS card.	xct-15

Alphabetical list of commands

Command	Description	Pack/Rel
ANNx#loop## (266x#loop##)	Provides signals coming through source number x of KAPSCH Digital Announcer or Music Interface. Where: loop = Tone and Digit Switch loop number.	basic-6
BSY#L## (279#L##)	Provide busy tone from tone and digit loop L.	basic-1
C## (2##)	Remove any active tone.	basic-1
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CMAJ	Clear major alarm, reset power fail transfer and clear power fault alarm.	basic-1
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	basic-1
CMP#loop## (267#loop##)	Provide Camp-On tone from loop.	basic-1
CUST#xx## (2878#xx##)	Test outpulsing for customer XX.	basic-1
CWG#loop## (294#loop##)	Give call waiting tone from loop.	basic-1
DIA#L## (342#L##)	Provide dial tone from tone and digit loop L.	basic-1
DISD l s c	Disable the specified Meridian 1/Meridian SL-1 Tone Detector card. Disables both units and lights the LED. (not supported on Option 11)	basic-1
DISD l s c u	Disable specified Dial Tone Detector. If both units on the card are disabled, the LED lights. (not supported on Option 11)	basic-1

LD 34

DISL loop	Disable tone and digit loop. For Conference/TDS/MFS cards see note with ENLL command.	basic-1
DISR c (u)	Disable specified DTR/MFR or XTD card or unit. (Option 11) <i>For Option 11C:</i> this command applies to any units on card 0 regardless of its configured type.	xtd-8
DISR l s c (u)	Disable specified DTR/MFR or XTD card or unit.	xtd-8
DISX c	Disable the TDS/MFS card (Option 11) <i>For Option 11C:</i> this command disables TDS and all units (0-15) on card 0.	basic-22
DISX l	Disable Conf/TDS/MFS card on loop l and l + 1. Disables the entire combined Conference, Tone and Digit Switch, and MF Sender (NT8D17) card. Both the even numbered TDS/MFS loop and adjacent conference loop are disabled. loop = 0, 2, 4, . . . 158 The DISL and ENLL commands can be used on the even number loop for the TDS/MFS functions. However, this only prevents the loop from being used by software and does not affect the hardware status of the card. The DISX and ENLX commands are recommended. The ENLX command must be used if the DISX command was used to disable the card. This command can be used in LD 34, LD 38 and LD 46.	xct-15
DRNG#loop## (3764#loop##)	Provide distinctive ringing from loop.	basic-1
DTD l s c u	Test specified Dial Tone Detector unit. Applies to DTD and XTD packs. The Dial Tone Detector Test (DTDT) parameters must be configured in the configuration record (LD 17). Faulty DTD packs are disabled. Only 50% of all Dial Tone Detectors in the system may be disabled.	xtd-8
DTR c (u)	Test specified unit on Digitone receiver card or unit. (Option 11) <i>For Option 11C:</i> this command is applicable to DTR units 0-7 and 8-15.	basic-1

DTR I s c (u)	Test specified unit on Digitone receiver card or unit . This test may be performed while the card is enabled or disabled. If a disabled card passes the test, it is enabled automatically. This command also applies to the XTD.	xtd-8
END	Stop execution of current command.	basic-1
ENLD I s c (u)	Enable Tone Detector on specified card or unit. (not supported on Option 11)	basic-1
ENLL I	Enable tone and digit switch loop I. For Conference/TDS/MFS cards the DISX and ENLX commands must be used whenever the faceplate switch of the card has been toggled. ENLL will software enable the card but the card will not be properly reset.	basic-1
ENLR c (u)	Enable the DTR/MFR or XTD card or specified unit. (Option 11) <i>For Option 11C:</i> this command applies to any units on card 0 regardless of its configured type.	xtd-8
ENLR I s c (u)	Enable the DTR/MFR or XTD card or specified unit.	xtd-8
ENLX c	Enable the TDS/MFS card <i>For Option 11C:</i> This command enables TDS and all units on card 0. For Card 0, this command initiates the card reset sequence: it downloads any parameters required for any configured MFC/MFE/MFK5/MFK6 units.	basic-22
ENLX I	Enable Conf/TDS/MFS card on loop I and I + 1. This command can be used in LD 34, LD 38 and LD 46. Enables the entire combined Conference, Tone and Digit Switch, and MF Sender (NT8D17) card. Both the even numbered TDS/MFS loop and adjacent conference loop are enabled. (loop = 0, 2, 4, . . . 158) The Conf/TDS card is not enabled automatically when it is inserted. Both loops must have been previously disabled. This command initiates card tests and the download of software.	xct-15

The DISL and ENLL commands can be used on the even number loop for the TDS/MFS functions. However, this only prevents the loop from being used by software and does not affect the hardware status of the card. The DISX and ENLX commands are recommended. The ENLX command must be used if the DISX command was used to disable the card.

Enabling more than 16 conference loops may cause the system to lock-up.

ITN#loop## (486#loop##)	Provide intrusion tone from loop.	basic-1
JDRG#loop## (5374#loop##)	Provide distinctive ringing from loop.	basic-8
JIDT#loop## (5438#loop##)	Provide interrupted dial tone from loop.	basic-8
MFR	Test all Automatic Number Identification (ANI) Multifrequency receiver units. <i>For Option 11C:</i> this command includes card 0 MFR units	fgd-17
MFR c	Test all MFR units on card c (Option 11) <i>For Option 11C:</i> this command is applicable to card 0 units if they are MFR units	fgd-17
MFR c (u)	Test Automatic Number Identification (ANI) Multifrequency receiver card or unit. (Option 11) <i>For Option 11C:</i> this command is applicable to card 0 units if they are MFR units	fgd-17
MFR loop	Test all Automatic Number Identification (ANI) Multifrequency receivers on this loop.	fgd-17
MFR l s c (u)	Test Automatic Number Identification (ANI) Multifrequency receiver card or unit.	fgd-17

OPS#L#xx## (677 #L #xx##)	basic-1
Test outpulsing from Meridian 1/Meridian SL-1 to idle trunk.	
Outpulses from tone and digit loop I using the 10 or 20 pps outpulser to any idle trunk. This command connects the Meridian 1/Meridian SL-1 maintenance telephone to the trunk, permitting a test call on the trunk to be made using the outpulsers selected.	
Where :	
• xx = 10 or 20 representing the trunk class of service (LD 14 CLS = P10 or P20).	
When the test call is completed, LD 34 must be reloaded by dialing SPRE + 91 before entering another command.	
ORD#loop## (673#loop##)	basic-1
Provide override tone from loop.	
OVF#L## (683#L##)	basic-1
Provide overflow tone from loop L.	
PCRT#loop## (7278#loop##)	pcr-7
Test the Paid Call Restriction (PCR) tone after the TABL command.	
RBK#L## (725#L##)	basic-1
Provide ringback tone from loop L.	
RNG#L## (764#L##)	basic-1
Provide ring tone from loop L.	
SDL#loop## (735#loop##)	basic-1
Give special dial tone from loop.	
SDTR	xtd-8
List the TNs of all disabled DTR/MFR or XTD units	
SDTR	basic-1
List all disabled DTR units	
SDTR c (u)	basic-1
Get status of specified DTR or XTD card or unit. (Option 11)	
For Option 11C: This command provides the status of all units 0-11 or 0-15 for card 0, regardless of configured type.	

SDTR I s c (u)	Get status of specified DTR/MFR or XTD card or unit. If no parameters are entered, a list of all DTR/MFR TNs is output. If I s c is input, the status of the DTR/MFR units on the specified card are output. If I s c u is input, the status of the specified unit is output. Applies to DTR and XTD packs.	basic-1
STAD	List all disabled Tone Detector units. (not supported on Option 11)	basic-1
STAD I s c (u)	Get status of Tone Detector card or unit. The status is either idle, busy, maintenance busy or not equipped.	basic-1
STAT	List TNs of all disabled Digitone Receivers. NONE is output if there are no disabled Digitone Receivers. <i>For Option 11C:</i> this command lists TNs of all disabled DTRs and includes all card 0 DTR/XTD units.	basic-1
STAT c	Show TDS status and number of disabled or busy tone transmitter channels. The STAT c command is used for the SSTD or CPU card.	basic-1
STAT loop	Get status TDS loop. The response may include OPS DSBL, indicating that the outpulsing function of the TDS card has been disabled.	basic-1
TABL#xx## (8225#xx##)	Select table number xx. If this command is not issued before any tone request command, then table 0 is assumed (Generic X11 with supplementary features).	basic-1
TDET I s c (u)	Perform self-test and tone detection on specified card or unit. Performs the self-test and basic tone detection functions of the Meridian 1/Meridian SL-1 Tone Detector card or unit. This test may be performed while the card is enabled or disabled. If a disabled card passes the test, it is enabled automatically.	basic-1
TDS loop	Test outpulsers and channels on specified loop. Tests the outpulsers and channels of the tone and digit switch at loop. Outpulsers and tones are tested with a maintenance telephone (see commands from maintenance telephone).	basic-1

TDS card	<p>Test outputers and channels on specified card. (Option 11) When the Fast Tone and Digit Switch (FTDS) package 87 is equipped, it:</p> <ul style="list-style-type: none"> — tests the outputers and channels of the tone and digit switch — outputers 32 digits to a DTR, receives and stores the 32 digits from the DTR — tests that the time to output 32 digits is within an acceptable range — compares the outputed 32 digits with those received and displays OK if they match 	basic-1
TLP#loop## (857#loop##)	<p>Provide tone to last party from the tone and digit loop.</p>	basic-4
TST#loop## (878#loop##)	<p>Provide test tone from loop.</p>	basic-1
XCTT# L#t#c## (9288# L#t#c##)	<p>Test tone and cadence number on Conference/TDS/MFS card. Where:</p> <ul style="list-style-type: none"> • L = loop number of Conference/TDS/MFS (NT8D17) card • t = tone number • c = cadence number <p>Refer to Flexible Tone and Digit Switch cards (553-2711-180) for the Conference/TDS tone and cadence numbers.</p>	xct-15

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LD 35: Common Equipment Diagnostic

This program is used to maintain the Central Processing Unit (CPU) and related cards. It can be run in background, during the daily routines, or loaded manually to enter commands. Problems are reported by CED messages.

The CED program is used to:

- clear the maintenance display to 00 or blank
- switch CPUs in dual-CPU systems
- test the idle CPU in dual-CPU systems
- display the status of CPU and buses
- enable, disable, test, and display status of memory and CMA cards
- enable, disable and display the status of CE extenders

When loaded during daily routines, memories cards are tested. If there are two CPUs, a CPU switchover is made.

This Overlay applies to all systems EXCEPT Options 51C, 61C, 81 and 81C. Refer to LD 135 for Core Common Equipment Diagnostics.

Extender designations

Extender Codes for LD 35 (CED)

0M0—from CPU 0 to Memory Shelf 0
0M1—from CPU 0 to Memory Shelf 1
1M0—from CPU 1 to Memory Shelf 0
1M1—from CPU 1 to Memory Shelf 1

0G0—from CPU 0 Network Group 0
0G1—from CPU 0 Network Group 1
0G2—from CPU 0 Network Group 2
0G3—from CPU 0 Network Group 3
0G4—from CPU 0 Network Group 4

1G0—from CPU 1 Network Group 0
1G1—from CPU 1 Network Group 1
1G2—from CPU 1 Network Group 2
1G3—from CPU 1 Network Group 3
1G4—from CPU 1 Network Group 4

Basic commands

The following commands are applicable to all machines, except Option 11 systems. See the list of Option 11 commands for further information.

BATT	Check status of memory battery backup (STE and Option 21E only)
CDSP	Clear the maintenance display on active CPU to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DIS xx	Disable memory card xx
DIS CMA x	Disable Changeover and Memory Arbitrator (CMA) x
DIS EXT xxx	Disable the specified extender pair
DIS SBE	Disable the Segmented Bus Extender (SL-1 MS only)
DSPL	Get contents of maintenance display on the active CPU
END	Terminate test in progress
ENL xx	Enable and perform a memory test on card x
ENL CMA x	Enable Changeover and Memory Arbitrator (CMA) x
ENL EXT xxx	Enable specified extender pair
ENL SBE	Enable Segmented Bus Extender (SL-1 MS only)
FCNT	Print soft failure counts of all memory modules
IDC ICM	Print card ID for Integrated CPU with 4Meg Memory (ICM). (STE and Option 21E only)
IDC MSPS	Print card ID for Misc/SDI and PS (MSPS). (STE and Option 21E only)
LDIS	List disabled memories
LENL	List enabled memories
MEM xx	Perform memory test on module xx
MIDN	Run midnight (daily) routines once CED is aborted and the user logs off
REPL xx	Enable new memory card xx
SCPU	Make inactive CPU the active CPU
SHLF X	Perform memory decode fault test on CPU x
STAT CMA x	Get status of CMA x
STAT CPU	Output status of both CPUs
STAT EXT	Output extender pair designations
STAT EXT xxx	Output status of specified extender
STAT MEM	Output status of all memory cards

STAT MEM xx	Output status of memory card xx
STAT SBE	Print status of Segmented Bus Extender (SL-1 MS)
TCPU	Test inactive CPU in a dual CPU system

Option 11 commands

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DSPL	Get contents of maintenance display
END	Terminate test in progress
MEM 0	Perform memory test on module 0
MIDN	Run midnight (daily) routines once CED is aborted
STAT MEM	Output status of all memory cards
STAT MEM xx	Output status of memory card xx

Alphabetical list of commands

Command	Description	Pack/Rel
BATT	Check status of memory battery backup. (STE and Option 21E only). The response is OK or CED503.	basic-18
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CMAJ	Clear major alarm, reset power fail transfer and clear power fault alarm.	basic-1
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	basic-1
DIS xx	Disable memory card xx. (xx is a 2-digit number) The first digit specifies which CPU the card is associated with and the second specifies the memory card number. All memory cards associated with that CPU must be disabled before removing the card.	basic-1
DIS CMA x	Disable Changeover and Memory Arbitrator (CMA) x. Disables the specified Changeover and Memory (CMA) card. The CMA must be on the idle CPU and all memories served by the CMA must be disabled.	basic-1
DIS EXT xxx	Disables the extender pair specified by xxx. Only extenders on the nonactive CPU may be disabled. The extender is marked as unusable by the system and it will not attempt to use it, i.e., a CPU changeover will not be permitted. LEDs on the card faceplates do not reflect this command. See introduction for extender designations.	basic-1
DIS SBE	Disable the Segmented Bus Extender (SL-1 MS only).	basic-1
DSPL	Get contents of maintenance display. If the maintenance display is blank, 000 will be output.	basic-1
END	Terminate test in progress.	basic-1

ENL xx	Perform memory test on Memory card xx. (xx is a 2-digit number) The first digit specifies which CPU the card is associated with and the second specifies the card number. The card must not be in use by the system. Dual CPU systems only. System response of OK is output and card is enabled if the test is passed.	basic-1
ENL CMA x	Enable Changeover and Memory Arbitrator (CMA) x. The CMA must be on the idle CPU.	basic-1
ENL EXT xxx	Enable specified extender pair. Only extenders on the nonactive CPU may be enabled. See introduction for extender designations. The state of the LED on the circuit card faceplate does not reflect this command.	basic-1
ENL SBE	Enable Segmented Bus Extender (SL-1 MS only).	basic-1
FCNT	Print soft failure counts of all memory modules. Response is either (sample):	basic-1

1. For system Options NT, RT, XT, 51, 61 and 71:

<u>CD</u>	<u>MTR</u>	<u>FCNT</u>
0	0	0
0	1	0
0	2	0

Where: CD = memory card number, MTR = Memory Trouble Register on 768K memory board, and FCNT = fault counts on that MTR.

2. For all other system options:

<u>CD</u>	<u>PAGE</u>	<u>LFC</u>	<u>HFC</u>
0	0	3	1
0	1	0	2
0	2	3	2
1	5	2	0
1	6	0	1

Where: CD = memory card number, PAGE = page number, LFC = fault count of low card module, and HFC = fault count of high card module.

Not applicable to SL-1 MS, S, ST or system Option 21.

IDC ICM IDC MSPS	<p>Print card ID for ICM and Print card ID for MSPS. The Integrated CPU with 4Meg Memory (ICM) or Misc/SDI and PS (MSPS) card ID is output in the following format:</p> <pre>PPPPPPPPAA RRRSSS cccccccc@DDDDD</pre> <p>Where:</p> <ul style="list-style-type: none"> • P P P P P P P P = PEC code • AA = Attribute code • RR = Release number • S S S S = Serial number • c c c c c c c c = Comments (optional) • @ = HEX 01 ASCII SOH character (non printing) • D D D D D = Design code 	basic-18
LDIS	List disabled memories. Not applicable to SL-1 MS, S, ST or system Options 11 and 21.	basic-1
LENL	List enabled memories. Not applicable to SL-1 MS, S, ST or system Options 11 and 21.	basic-1
MEM 0	Perform memory test on module 0. (Option 11)	basic-1
MEM xx	<p>Perform memory test on module xx.</p> <p>Performs a memory test on module xx, which is a 1- or 2-digit number specifying the card to be tested. If only one digit is entered the memory in CPU 0 is tested. The card does not have to be in the configuration record (CFN) to pass the test. System outputs K if test is passed.</p> <p>The module must be disabled first with the DIS xx command.</p>	basic-1
MIDN	Run midnight (daily) routines once CED is aborted. MIDN causes midnight routines to be run after CED is aborted or logged out.	basic-1
REPL xx	<p>Enable new memory card xx. (xx is a 2-digit number)</p> <p>The first digit specifies which CPU the module is associated with and the second specifies the memory module number.</p> <p>This command is used to enable a new memory module after inserting it into the shelf. It sets the soft memory failure count zero and tests the module. If the tests are successful the module is enabled.</p>	basic-1

SCPU	<p>Make inactive CPU the active CPU.</p> <p>In a dual CPU system, this command causes the inactive CPU to become the active CPU. If the changeover is successful, OK is output. This command cannot be used when the active CPU is in maintenance mode.</p> <p>Caution: Indiscriminate use of this command should be avoided as system reload may occur.</p>	basic-1
SHLF x	<p>SHLF x performs a memory decode fault test on the disabled memories corresponding to the specified CPU x (0 or 1).</p> <p>To use this test, disable the memory cards that are to be included in the test and issue the command to the appropriate shelf. If individual tests of memory cards using the MEM command pass but the SHLF test fails on the same modules, then the CMA or controller is probably faulty.</p>	basic-1
STAT CMA x	<p>Get status of CMA x. Response is:</p> <p>CMA x ACTIVE y MEM = CMA is being used CMA x DSBL y MEM = CMA is disabled CMA x ENBL y MEM = CMA is enabled but in a standby state</p> <p>Ignore the value y for memory. Use STAT MEM to check memory status.</p>	basic-1
STAT CPU	<p>Outputs the status of both CPUs. Responses are:</p> <ul style="list-style-type: none"> • ENBL = CPU is running • IDLE = CPU is in standby • DSBL = CPU is disabled <p>Not applicable to Meridian SL-1 MS or S.</p>	basic-1
STAT EXT	<p>Output extender pair designations.</p> <p>This command outputs the extender pair designation and if disabled indicates the number of devices on the network shelf connected to the extender that would become inaccessible if a CPU changeover occurs.</p> <p>If the extender has been disabled by using the DIS EXT command, then the number output will be equal to the number of devices on the shelf.</p> <p>See introduction for extender designations.</p>	basic-1

STAT EXT xxx	<p>Output status of specified extender. For extenders to network shelves, the response is:</p> <ul style="list-style-type: none"> • x <status> <y NET> <p>Where:</p> <ol style="list-style-type: none"> 1. x <status> = status of extender x and can be one of: <ul style="list-style-type: none"> a ENBL = the extender is enabled. b DSBL = the extender is disabled. c LEFT DSBL = only the left half of the group served by the extender is disabled; i.e., shelf 0. d RIGHT DSBL = only the right half of the group served by the extender is disabled; i.e., shelf 1 2. y NET = the number of network and PS cards that do not respond when accessed using the specified extender but do respond when the extender from the other CPU is used. 	basic-1
STAT MEM	<p>Outputs the status of all Memory cards, i.e., how many cards enabled and how many disabled. Use STAT MEM xx for status of a specific card.</p>	basic-1
STAT MEM xx	<p>Output status of memory card xx. (xx is a 2-digit number)</p> <p>The first digit specifies which CPU the module is associated with and the second specifies the memory module number.</p> <p>Responses are:</p> <ul style="list-style-type: none"> • ENBL = module is enabled • ENBL BUT FAULTY = module is enabled but faulty • REPL = module is replaced • DSBL = module is disabled • UNEQ = module is missing or not configured 	basic-1
STAT SBE	<p>Print status of Segmented Bus Extender (SL-1 MS only).</p>	basic-1
TCPU	<p>Test inactive CPU in a dual CPU system.</p> <p>This command tests the inactive CPU. If the CPU passes, OK is output. This command cannot be used when the active CPU is in maintenance mode.</p> <p>Caution: Indiscriminate use of this command should be avoided as system reload may occur.</p>	basic-1

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X11 Release:	24

LDs 36, 41: Trunk Diagnostic

Insufficient space in the Overlay area requires the trunk diagnostic to be split into two programs. Overlay 41 is an extension of Overlay 36. Overlay 41 is not applicable with X11 Release 20 and later software.

The programs allow trunks to be tested from either the Meridian 1/Meridian SL-1 site or a remote test center.

When testing from a Meridian 1/Meridian SL-1 site, individual trunks can be seized and a test call can be performed on the trunk in the normal manner.

When testing from a remote test center, a speech path must be set up to monitor the testing. This is accomplished by having the Meridian 1/Meridian SL-1 system call a directory number (DN) at the test center. This allows for dial tone, outpulsing and test tones to be monitored as tests are performed on other trunks by inputting commands at the TTY.

When a trunk is seized, the system prompts DN? for a DN. When the DN is input, the system calls that number automatically. When the call is answered a pure tone indicates the validity of the speech path. New trunks can be tested in the same manner with the maintenance telephone.

Note 1: When the French (FRTA) package 197 is enabled the units on CO trunks are not busied when they are disabled.

Note 2: When the Trunk Failure Monitor (TFM) package 182 is enabled, a failed trunk is displayed as BUSY. The enable/disable command does not enable or disable the failed trunk unit (it stays in the BUSY state).

When to use LD 36 and LD 41

Use either LD 36 or LD 41 to:

- clear minor alarms and the maintenance display
- query threshold overflows for specific customers and routes
- reset thresholds for specific trunks

Use LD 36 to:

- query number of days since an incoming call was received for a specific customer and route or trunk
- query the trunk with the most number of idle days for a specific customer and route
- query trunks for which no disconnect supervision was received
- test Automatic Number Identification (ANI) trunks.

Note: When defined as a midnight routine, this program searches for trunks not used during the day and updates the total number of days the trunks have been idle.

Use LD 41 to:

- test AIOD (Automatically Identified Outward Dialing) trunks in the system
- enable, disable and request the status of Trunk circuit cards. (Disabled DID trunks are placed in the answer state)

Note: LD 36 and LD 41 can only be used for analog trunks, LD 60 must be used for diagnostics on digital trunks.

Trunk Error Thresholds

Resident programs monitor all calls and note apparent errors. The errors are accumulated and, if they occur consistently (exceed a threshold) on any trunk, a diagnostic message which identifies the trunk is output to the TTY or printer. The trunk should be suspected of trouble and a manual test should be performed on the trunk.

A record is kept in memory for each threshold violation error message. At any time, all trunks which have been identified by such a message may be listed by entering the command LOVF for any trunk route. Once an identifying message has been printed, it will not be repeated for that trunk until the RSET command is entered for that trunk or an initialization has occurred.

Potentially, a trunk may fail by not detecting incoming calls. The Meridian 1/Meridian SL-1 threshold mechanism cannot be used to detect such failures so the Meridian 1/Meridian SL-1 maintains for each trunk a count of the number of days since an incoming call was received on each trunk.

Thus, customer reports that indicate incoming calls are not being processed can initiate a check for the trunk which has been without an incoming call for the longest interval via the LMAX command. This trunk should be tested first.

It is possible to determine for each trunk the number of days since an incoming call was processed via the LDIC command. Subsequent trunk tests should be performed on those trunks showing the highest counts until the trouble is located.

LDs 36, 41

Basic commands (LD 36)

The following commands are applicable to all machines, except Option 11 systems. See the list of Option 11 commands for further information.

CALL	Set up monitor link with test center
CALL l s c u	Set monitor link with test center on this trunk
CDSP	Clear the maintenance display on active CPU to 00 or blank
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c (not applicable for Release 22)
DISC l s c	Disable specified card for replacement
DISU l s c u	Disable specified unit
END	Terminate test in progress
ENLC l s c	Enable specified card
ENLU l s c u	Enable specified unit
LDIC c r	List number of days since last incoming call for specified customer and route
LDIC l s c u	List number of days since last incoming call on specified trunk
LMAX c r	List trunk with maximum idle days for specified customer and route
LNDS c r	List trunks with no disconnect supervision for specified customer and route
LOVF c r	List threshold overflows for specified customer and route
RAN c r	Test recorded announcement device for specified customer and route
RLS	Release trunk being tested
RSET l s c u	Reset thresholds for specified trunk
STAT l s c	Check card's software status
TRK l s c u	Seize trunk for testing
TPPM l s c u	Test the specified PPM trunk

Note: If a trunk unit is controlled by APNSS, the STAT command will display the status of the D-channel.

Option 11 commands

CALL	Set up monitor link with test center
CALL c u	Set monitor link with test center on this trunk
CDSP	Clear the maintenance display on active CPU to 00 or blank
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DISC card	Disable specified card for replacement
DISU c u	Disable specified unit
END	Terminate test in progress
ENLC card	Enable specified card
ENLU c u	Enable specified unit
LDID c r	List of days since last incoming call for specified customer (c) and route (r).
LMAX c r	List trunk with maximum idle days for specified customer and route
LNDS c r	List trunks with no disconnect supervision for specified customer and route
LOVF c r	List threshold overflows for specified customer and route
RAN c r	Test recorded announcement device for specified customer and route
RLS	Release trunk being tested
RSET c u	Reset thresholds for specified trunk
STAT card	Check card's software status
TRK c u	Seize trunk for testing

LDs 36, 41

Basic commands (LD 41)

Overlay 41 is not available with X81 Phase 6 and later software or X11 Release 20 and later software.

AIOD l s c	Test AIOD card
AIOD MSG l s c	Output codes transmitted to Public Telephone Rated Service (PTRS)
CDSP	Clear the maintenance display on active CPU to 00 or blank
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DISC l s c	Disable specified card for replacement
END	Terminate test in progress
ENLC l s c	Enable specified card
LOVF c r	List threshold overflows for specified customer and route
RSET l s c u	Reset thresholds for specified trunk
STAT l s c	Check card's software status

Alphabetical list of commands

Command	Description	Pack/Rel
AIOD I s c	Test AIOD card. Not available in Release 9 and later.	basic-1
AIOD MSG I s c	Output codes transmitted to PTRS. Output on TTY all 8-digit codes bring transmitted to PTRS by AIOD card. Response is OK if monitor is set. Not available in Release 9 and later.	basic-1
CALL	Set up monitor link with test center. Same as the CALL I s c command except any PTRS trunk in the system can be selected. The CALL command must be terminated using the * command.	basic-1
CALL c u	Set monitor link with test center on this trunk. (Option 11)	basic-1
CALL I s c u	This command sets up a monitor link (call) between the Meridian 1/ Meridian SL-1 and the test center on the trunk specified. The system prompts "DN?" for the directory number. When the PTRS directory number is entered, the system calls up that number automatically. When the call is answered, a pure tone indicates the validity of the link. This sequence can take up to 14 seconds on a trunk without answer supervision. The END command disconnects the call. The CALL I s c u command is not allowed when the diagnostic program is being run from a maintenance telephone. During the CALL command, On-Hook and Off-Hook signals from the maintenance telephone may initiate BUG105. When the monitor is enabled, a failed trunk is displayed as BUSY. The enable/disable command does not enable or disable the failed trunk unit (it stays in the BUSY state).	basic-1
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CMIN	Clear the minor lamp on a system basis.	alm_filter-22
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1

LDs 36, 41

CMIN c	Clear minor alarm indication on attendant consoles for customer c. (not applicable for Release 22)	basic-1
DISC card	Disable specified card for replacement. (Option 11)	basic-1
DISC l s c	Disable specified card for replacement.	basic-1
DISU c u	Disable specified unit. (Option 11)	basic-1
DISU l s c u	Disable specified unit.	basic-1
END	Terminate test in progress	basic-1
ENLC card	Enable specified card. (Option 11)	basic-1
ENLC l s c	Enable specified card. If the card resides on a disabled shelf, its status is output and the enable is not performed. If the card has been disabled by an overload, the overload status is cleared.	basic-1
ENLU c u	Enable specified unit. (Option 11)	basic-1
ENLU l s c u	Enable specified unit. If unit resides on a disabled shelf or card, then status is output and enable is not performed.	basic-1
LDIC c r	List number of days since last incoming call for specified customer (c) and route (r).	basic-1
LDID c r	Number of days since last incoming call for specified customer (c) and route (r). (Option 11)	
LDIC l s c u	List number of days since last incoming call on specified trunk.	basic-1
LMAX c r	List trunk with maximum idle days for specified customer and route	basic-1
LNDS c r	List trunks with no disconnect supervision for specified customer and route. (trunks for which no disconnect supervision was received, i.e., terminating party not going On-Hook after a call)	basic-1

LOVF c r	List threshold overflows for specified customer and route. The overflows are set when the resident trunk monitor outputs a diagnostic	basic-1
RAN c r	Test recorded announcement device for specified customer and route.	basic-1
RLS	Release trunk being tested.	
RSET c u	Reset thresholds for specified trunk. (Option 11)	basic-1
RSET I s c u	Reset thresholds for specified trunk.	basic-1
STAT card	Check card's software status. (Option 11)	basic-1
STAT I s c	Check card's software status.	basic-1
TPPM I s c u	Test the specified PPM trunk. This command is not applicable when the Meridian 1/Meridian SL-1 is connected to 1 TR 6 international ISDN PRA.	basic-1
TRK c u	Seize trunk for testing. (Option 11)	basic-1
TRK I s c u	<p>Seize trunk for testing.</p> <p>Seizes the specified trunk for outpulsing and testing. If the command is issued from a maintenance telephone, dial tone is heard followed by outpulsing when the directory number is entered.</p> <p>If a trunk is to be seized for outpulsing and testing from a remote test center (not a maintenance telephone), a monitor link must first be set up using the CALL I s c u command. This must not be over the trunk to be tested.</p> <p>With the monitor link set up, the TRK I s c u command is input to select the trunk to be tested. The system then prompts with "DN?" and the directory number is input via the TTY. Normal speech path connections are made between the monitor link and the trunk being tested.</p> <p>Disconnect by entering END, by going On-Hook if an SL-1 telephone is used or by entering *. END also disconnects the monitor link.</p> <p>This command cannot be used to seize an ISL trunk.</p>	basic-1

LDs 36, 41

Issued:	June 1999
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X11 Release:	24

LD 37: Input/Output Diagnostic

This program is used to diagnose faults with disk units, tape units, Teletypewriter (TTY) or Serial Data Interface (SDI) cards. It provides enable, disable, status and test functions on these devices. Problems are indicated in IOD messages.

When LD 37 is defined as a daily routine, the program runs only once every 5 days and the primary storage device (disk or tape) is thoroughly tested (equivalent to command MSI 0 or TAPE 0).

Only some of the commands in this Overlay are supported by Options 51C, 61C, 81 and 81C. Refer to LD 137 for core commands.

Refer to LD 48 for I/O ports used with the following applications.

- Command and Status Links (CSL)
- Meridian Link
- Automatic Call Distribution (ACD)
- Integrated System Messaging Link
- Enhanced Serial Data Interface (ESDI) ports

Intelligent links (APL, HSL, LSL, and CMAC)

A warning message is generated each time an intelligent link is accessed (enable, disable, test). The message is generated for the following types of links:

- APL
- ACD-D (HSL/LSL)
- CMAC (CMC)

The message allows the access to be aborted prior to performing the enable, test, etc. The warning appears in the following format:

DIS TTY N (link type) LINK (status) (y/n)

A response of y disables the hardware of the TTY regardless of the software status of the link. The status field provides the software status of the link.

Valid status entries are:

BAD = software status is invalid

DOWN = link is down

MAINT = link is up and in maintenance mode

FULL = link is full

EMPTY = link is empty

NOT EMPTY = link still contains data

Disk commands versus tape commands

Various MSI (Mass Storage Interface) commands are not supported on Generic X37 and Generic X08 (prior to Release 12) and if equipped with disk drives, the corresponding TAPE command should be used when testing the MSI as follows:

Disk command	Tape command
DIS MSI x	DIS TAPE x
ENL MSI x	ENL TAPE x
MSI DATA	TAPE DATA
MSI x	TAPE x
MSI RW x	TAPE RW x
MSI SELF x	TAPE CTRL x
STAT MSI	STAT TAPE
STAT MSI x	STAT TAPE x

Use of the TAPE x or TAPE MOTN x commands on a system equipped with disk drives will result in an IOD075 message. This message should be disregarded.

If LD 37 is run as part of the daily routines, an IOD075 message will be output on systems equipped with disk drives. This message should be disregarded.

Basic commands

Not all commands are valid on Option 11 systems, as these systems do not use tape drives.

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c (not applicable for Release 22)
DIS MSG	Disable incoming message monitoring for the primary PMSI port.
DIS MSGO	Disable outgoing message monitoring for the primary PMSI port.
DIS MSI x	Disable Mass Storage Interface card x (not valid on Option 11)
DIS PRT x	Disable printer x
DIS TAPE x	Disable tape unit x (not valid on Option 11)
DIS TTY x	Disable TTY x. (valid only for Card 0 Port 0 TTY on Option 11 systems)
END	Clear all test activity
ENL MSGI	Enable incoming message monitoring for the primary PMSI port.
ENL MSGO	Enable outgoing message monitoring for the primary PMSI port.
ENL MSI x	Enable Mass Storage Interface x
ENL PRT x	Enable printer x
ENL TAPE x	Enable tape unit x (not valid on Option 11)
ENL TTY x	Enable TTY x
MSI x	Test Mass Storage unit x (not valid on Option 11)
MSI DATA	Test data validity in primary and backup device. (not valid on Option 11)
MSI RW x	Test READ/WRITE ability of Mass Storage unit x. (not valid on Option 11)
MSI SELF x	Perform self-test on MSI card x and report result. (not valid on Option 11)
PRT x	Test printer x
SET MON 0	Set the monitoring display to be in alphanumeric format. This applies to the primary PMSI port.
SET MON 1	Set the monitoring display to be in hexadecimal format. This applies to the primary PMSI port.
STAT	Provide status of all input/output devices in system
STAT LINK	Provide status of all CDR links
STAT LINK x	Provide status of CDR data link x

STAT MON	Get the monitoring status for the primary PMSI port. This command displays the status of the message monitoring for the primary port. For example, if MSGI, MSGO, and SET MON 0 are enabled, the display would be as follows. MSGI:ON MSGO: ON ALPH
STAT MSI	Provide status of all MSI cards
STAT MSI x	Provide status of MSI card x
STAT PRT	Provide status of all printers in system
STAT PRT x	Provide status of printer x
STAT TAPE	Provide status of all magnetic tape devices . (not valid on Option 11)
STAT TTY	Provide status of all TTY devices in system Release 19 and later, this command enables you to get the status of the primary PMSI I/O port, and the Single Terminal Access (STA) administration terminal.
STAT TTY x	Provide status of TTY x Release 19 and later, this command also provides the status of the primary PMSI port.
STAT XSM	Provide status of the system monitor
TAPE CTRL x	Test control electronics on tape device x (not valid on Option 11)
TAPE DATA	Test data on all 4 tracks (not valid on Option 11)
TAPE MOTN x	Test motion and timing on tape device x (not valid on Option 11)
TAPE x	Test magnetic tape device x (not valid on Option 11)
TAPE RW x	Test READ/WRITE ability of tape device x (not valid on Option 11)
TTY x	Test TTY x

Multipurpose Serial Data Link (MSDL) commands

The MSDL provides 4 ports for ISDN Primary Rate D-channel (DCH) and Application Module Link (AML).

The MSDL commands are listed below, **x** is the MSDL device number (defined by prompt DNUM in LD 17). These commands are provided in Link Diagnostic (LD 48) and D-channel Diagnostic (LD 96).

DIS MSDL x (ALL)	Disable MSDL device x (card)
ENL MSDL x (ALL, FDL)	Enable MSDL device x (card, Forced Download)
RST MSDL x	Reset MSDL device x
SLFT MSDL x	Invoke self-test for MSDL device x
STAT MSDL (x) (FULL)	Get status of MSDL card (x) (additional information)

Note: See "Alphabetical List of commands" in LD 48 for a complete description of these commands.

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CMIN	Clear the minor lamp on a system basis.	alarm_filter-22
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c. (not applicable for Release 22)	basic-1
DIS MSG	Disable incoming message monitoring for the primary PMSI port.	pms-19
DIS MSGO	Disable outgoing message monitoring for the primary PMSI port.	pms-19
DIS MSI x	Disable Mass Storage Interface card x.	basic-1
DIS MSDL x (ALL)	Disable MSDL device x	
DIS PRT x	Disable printer x.	basic-1
DIS TAPE x	Disable tape unit x.	basic-1
DIS TTY x	Disable TTY x. Only valid for Card 0 Port 0 TTY on Option 11 systems.	basic-1
END	Clear all test activity.	basic-1
ENL MSGI	Enable incoming message monitoring for the primary PMSI port.	pms-19
ENL MSGO	Enable outgoing message monitoring for the primary PMSI port.	pms-19
ENL MSI x	Enable Mass Storage Interface card x.	basic-1
ENL MSDL x (ALL, FDL)	Enable MSDL device x	

ENL PRT x	Enable printer x.	basic-1
ENL TAPE x	Enable tape unit x.	basic-1
ENL TTY x	Enable TTY x.	basic-1
MSI x	Test Mass Storage unit x. This command runs the MSI DATA, MSI RW x and MSI SELF x tests.	basic-1
MSI DATA	Test data validity in primary and backup device.	basic-1
MSI RW x	Test READ/WRITE ability of Mass Storage unit x.	basic-1
MSI SELF x	Perform self-test on MSI card and report result.	basic-1
PRT x	Test printer x. Same as TTY test except that no keyboard input is expected and END command is not required. Where: * denotes that the printer is not yet available	basic-1
RST MSDL x	Reset MSDL device x	
SET MON 0	Set the monitoring display to be in alphanumeric format. This applies to the primary PMSI port.	pms-19
SET MON 1	Set the monitoring display to be in hexadecimal format. This applies to the primary PMSI port.	pms-19
SLFT MSDL x	Invoke self-test for MSDL device x	
STAT	Provide status of all input/output devices in system.	basic-1
STAT LINK	Provide status of all CDR links.	basic-1
STAT LINK x	Provide status of CDR data link x.	basic-1
STAT MON	Get the monitoring status for the primary PMSI port. This command displays the status of the message monitoring for the primary port. For example, if MSGI, MSGO, and SET MON 0 are enabled, the display would be as follows. MSGI:ON MSGO: ON ALPH	pms-19

STAT MSDL (x [FULL])	Get MSDL status	
STAT MSI	Provide status of all MSI cards.	basic-1
STAT MSI x	Provide status of MSI card x associated with the active CPU.	basic-1
STAT PRT	Provide status of all printers in system.	basic-1
STAT PRT x	Provide status of printer x.	basic-1
STAT TAPE	Provide status of all magnetic tape devices.	basic-1
STAT TTY	Provide status of all TTY devices in system. Release 19 and later, this command enables you to get the status of the primary PMSI I/O port, and the Single Terminal Access (STA) administration terminal.	basic-1
STAT TTY x	Provide status of TTY x. Release 19 and later, this command also provides the status of the primary PMSI port.	basic-1
STAT XSM	Provide status of the system monitor. If there are no error conditions, PWR000 is output. Otherwise, the appropriate PWR messages are output.	xpe-15
TAPE x	Test magnetic tape device x. This command combines the TAPE CTRL x, TAPE MOTN x, TAPE RW x and TAPE DATA tests.	basic-1
TAPE CTRL x	Test control electronics on tape device x.	basic-1
TAPE DATA	Test data on all 4 tracks.	basic-1
TAPE MOTN x	Test motion and timing on tape device x.	basic-1
TAPE RW x	Test READ/WRITE ability of tape device x.	basic-1
TTY x	Test TTY x. Response is: ABCDEFGHIJKLMNOPQRSTUVWXYZ 0123456789"#%*!&()<>-.:,.? READY FOR INPUT Anything entered on the keyboard will be echoed until END is input.	basic-1

LD 38: Conference Circuit Diagnostic

This program is used to detect and isolate circuit faults on the conference equipment in the system.

LD 38 can detect problems on the conference circuit such as:

- channel faults on the network card which interfaces a conference card to the system
- channel faults on the conference card
- conference faults associated with conferee group numbers
- switching faults controlling the attenuation feature.

The program is used to

- enable a specific conference card
- disable a specific conference card
- check status of channels and conferee groups
- clear alarms and displays

The program allows complete manual control in establishing a test conference, thus allowing the user to listen for noise and distortion. This includes:

- selection of a specific conference card
- selection of a specific conferee group
- stepping through all free channels and groups with special test conference.

Some commands are not valid on Option 11 systems, since the conference circuits are always enabled.

Note: Loops 29 and 30 are on the CPU/CONF card and loop 31 is on the Expansion Cabinet Data Cartridge (for Option 11 only).

Basic commands

CDSP	Clears the maintenance display on active CPU to 00 or blank
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
CNFC loop	Test conference loop
CNFC MAN loop g	Set up for manual conference on conference group g
CNFC STEP	Ready TTY for testing conferee groups
DISL loop	Disable conference loop
DISX loop	Disable Conf/TDS/MFS card on loop and loop - 1 (not valid on Option 11)
END	Abort all current test activity
ENLL loop	Enable conference loop
ENLX loop	Enable Conf/TDS/MFS card on loop and loop - 1 (not valid on Option 11)
LCNF loop	List busy and disabled conferee groups on specified loop
STAT loop	Provide status of conference card loop
STAT c u	List conference card and group used by specified TN. (Option 11)
STAT l s c u	List conference card and group used by specified TN.

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clears the maintenance display on active CPU to 00 or blank.	basic-1
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	basic-1
CNFC loop	Test conference loop. Tests conference loop for channel, group and switching faults. Note: Both the conference loop and the adjacent TDS/MFS loop must be enabled to run the conference test.	basic-1
CNFC MAN loop g	Set up for manual conference on conference group g. Only one manual conference is be allowed at a time. The conference group range is 1-15. After this command, any telephone dialing SPRE 93 enters the conference, where SPRE is the special service prefix for the system. Going on-hook from that telephone takes it out of the conference. If going On-Hook causes the conference to go from a three-party to a two-party call processing may remove all conference equipment and establish the remaining two parties as a normal call. The END command, which normally removes all telephones in the manual conference, will no longer affect these two telephones, as they are no longer using the conference card. If the CNFC MAN command is entered from a maintenance set, the telephone automatically becomes part of the manual conference.	basic-1
CNFC STEP	Ready TTY for testing conferee groups. Readies the TTY into a special command mode for testing various channels and conferee groups audibly, using two telephones: one to monitor and one to act as a signal source. The CNFC MAN command should have been used previously to set up the two-party conference. Entering C on the command input device will step the conference on to the next available channel.	basic-1

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Entering G will step to the next available conferee group.
Entering an asterisk (*) will revert back to the normal command mode.

Entering "END" or aborting LD 38 releases the manual conference.

DISL loop	Disable conference loop. For NT8D17 Conference/TDS/MFS cards, see ENLL command.	basic-1
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DISX loop	Disable NT8D17 Conf/TDS/MFS card.	xct-15
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Disables the entire combined Conference, Tone and Digit Switch, and MF Sender (XCT) card. Both the even numbered and adjacent loop are disabled.

Where: loop = 1, 3, 5,... 159

The DISL and ENLL commands can be used on the even number loop for the conference function. However, this only prevents the loop from being used by software and does not affect the hardware status of the card. The DISX and ENLX commands are recommended. The ENLX command must be used if the DISX command was used to disable the card.

This command can be used in LD 34, LD 38 and LD 46.

END	Abort all current test activity. There will be a 30 second time-out dial tone for phones still off-hook.	basic-1
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ENLL loop	Enable conference loop.	basic-1
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For NT8D17 Conference/TDS/MFS cards the DISX and ENLX commands must be used whenever the faceplate switch of the card has been toggled. ENLL will software enable the card but the card will not be properly reset.

Enabling more than 16 conference loops may cause system to lock-up.

ENLX loop	Enable NT8D17 Conf/TDS/MFS card on loop and loop - 1.	xct-15
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Enables all functions on the NT8D17 Conference/TDS card. Both the even numbered TDS/MFS loop and adjacent conference loop are enabled.

Where: loop = 1, 3, 5... 159

If one of the loops is already enabled, it is disabled and then both loops are enabled. The Conf/TDS card is not enabled automatically when it is inserted.

This command initiates card tests, downloads software and can be used in LD 34, LD 38 and LD 46.

The DISL and ENLL commands can be used on the even number loop for the conference function. However, this only prevents the loop from being used by software and does not affect the hardware status of the card. The DISX and ENLX commands are recommended.

Enabling more than 16 conference loops may cause the system to lock-up.

LCNF loop	List busy and disabled conferee groups on specified loop.	basic-1
STAT loop	Provide status of conference card loop. Output format is: <ol style="list-style-type: none"> 1. CNFC N DSBL N BUSY = number of conferee groups disabled and busy 2. CHAN N DSBL N BUSY = number of channels disabled and busy 3. UNEQ = card is not equipped in the system 4. DSBL = card is disabled in software 	basic-1
STAT c u	List conference card and group used by specified TN. (Option 11)	
STAT l s c u	Lists which conference card and conferee group is being used by the specified terminal number.	basic-1

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LD 39: Intergroup Switch and System Clock Generator Diagnostic

The Intergroup Switch (IGS) and System Clock Generator (SCG) or Clock Controller (CC) diagnostic applies to multi-group systems. It is used to:

- determine the status of any Peripheral Signaling, Intergroup Switch (IGS), System Clock Generator (SCG) or Clock Controller (CC) card
- disable and enable any PS, IGS, SCG or CC card
- switch the system clock from one SCG or CC to another
- clear minor alarm indications and the maintenance display on the active CPU
- All SCG commands can be used for Clock Controllers, although LD 60 is normally used when DTI, CPI or PRI features are installed

Group, loop, and Peripheral Signaling card relationship

<u>Group</u>	<u>Shelf</u>	<u>PS</u>	<u>Loops</u>
0	0	0	0-15
0	1	1	16-31
1	0	2	32-47
1	1	3	48-63
2	0	4	64-79
2	1	5	80-95
3	0	6	96-111
3	1	7	112-127
4	0	8	128-143
4	1	9	144-159

Basic commands

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DIS IGS x	Disables IGS card x (0 to 19)
DIS SCG x	Disable SCG card x (0 or 1)
DISI IGS x	Disables IGS card x (0 to 19) when idle
DSPS x	Disable PS card x (0 to 9)
END	Stop current operation or test
ENL IGS x	Enables IGS card x (0 to 19)
ENL SCG x	Enable SCG x (0 or 1)
ENPS x	Disable PS card x (0 to 9)
SCLK	Switch clock to other SCG
STAT IGS x	Get status of IGS card x (0 to 19)
STAT PER x	Print status of PS card x (0 to 9)
STAT SCG x	Print status of SCG x (0 or 1)

Alphabetical list of commands

Command	Description	Pack/ Rel
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	basic-1
DIS IGS x	Disables IGS card x (0 to 19).	basic-1
DIS SCG x	Disable SCG card x (0 or 1).	basic-1
DISI IGS x	Disables IGS card x (0 to 19) when idle. Use of this command is recommended instead of DIS IGS, which interrupts calls in progress. The command's progress can be monitored by using the appropriate STAT command. The command's completion is indicated by an output of ISR043 on the maintenance terminal.	basic-1
DSPS x	Disable PS card x (0 to 9).	basic-1
END	Stop current operation or test.	basic-1
ENL IGS x	Enables IGS card x (0 to 19).	basic-1
ENL SCG x	Enable SCG x (0 or 1).	basic-1
ENPS x	Disable PS card x (0 to 9).	basic-1
SCLK	Switch clock to other SCG.	basic-1
STAT IGS x	Get status of IGS card x (0 to 19). The response of "x DSBL y BUSY" indicates the number of junctor timeslots disabled or busy associated with the specified IGS card.	basic-1

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STAT PER x Print status of PS card x (0 to 9). basic-1

Possible responses:

1. DSBL: NOT RESPONDING = PS card x is either missing, faulty or disabled via the faceplate switch. If there is a fault in the extender pair for the network shelf, the status of the PS card will also be DSBL: NOT RESPONDING.
2. DSBL: RESPONDING = The PS card is disabled and responding to the CPU. The PS may have been disabled by manual request (DSPS) or the associated extender pair may have been manually disabled.

If neither of these conditions exist, the card may have been disabled because of an overload condition on the associated shelf.

Check for OVD messages appearing in previous TTY output. An attempt to enable a PS card which was disabled because of an overload may result in a recurrence of the overload condition: the system's service may be impaired for approximately 2 minutes.

STAT SCG x Print status of SCG x (0 or 1). basic-1

LDs 40, 42: Call Detail Recording Diagnostic

The Call Detail Recording (CDR) feature outputs call records to a single or multi-port tape drive storage system. The tapes are processed to produce billing reports.

The Option 51C/61C/81/81C Pseudo TTY (PTY) and Call Processor (CP) cards do not support the CDR link maintenance commands (CDL, CTY) used in this Overlay. When using the STAT command in this LD, the output includes all the ports: CP and PTY.

Automatic diagnostic routines

LD 40 is run in background, during the daily routines, or automatically in response to CDR faults. It performs the following:

- CDR Link test.
- CDR Controller status report.
- CDR data transmission/loss summary.

Fault indications reported by LD 40 are cleared after their corresponding CDM message is output. Faults in a multi-port CDR Tape Controller are reported to all Meridian 1/Meridian SL-1 systems connected to the controller. The fault records kept for each Meridian 1/Meridian SL-1 are maintained and cleared independently of each other by the controller.

LDs 40, 42

Loading LD 40 manually runs the automatic fault-clearing routines. Also, similarly to LD 42, the "CDMA loaded today" flag which prevents LD 40 from being automatically loaded more than once a day are cleared. Thus, manually loading LD 40 or 42 allows faults detected in the afternoon to be reported, even though previous faults may have been detected and cleared in the morning.

To run CDMA in background, you must reload LD 40 after a trouble has been cleared using LD 42. CDM117 X 3 is printed after LD 40 has been reloaded, where X is the Meridian 1/Meridian SL-1 link or port number. This reload is required so that the Meridian 1/Meridian SL-1 can react again as soon as another error is detected.

CDR maintenance mode and commands

Use LD 42 to:

- enable/disable/give status of CDR links and TTY
- perform diagnostic tests on CDR machines
- perform manual tape functions on CDR machines
- clear alarms and the maintenance display
- clear the maintenance display of CDR machines
- clear "CDMA loaded today" flags

The CDR storage system is put into maintenance mode to test the tape drive. While in maintenance mode, call records are saved in tape buffers. When all the buffer space is used up, incoming call records are lost. An 8K CDR machine can buffer about 600 call records; a 32K CDR can retain about 2500. Use the BUFF command to write the buffer contents to tape or output it to the I/O device.

Enter maintenance mode

- 1 Load CDM (LD 42).
- 2 Issue the PORT command to specify the CDR port.
- 3 Issue the GET command to put the CDR into maintenance mode.

GET sends the "Request Maintmode" message to CDR and waits for CDR to grant MAINTMODE, which CDR will not do until it is finished its current activity on the drive.

When CDR grants Maintenance Mode, it also makes available a tape buffer for the use of the read/write and RBC functions. This buffer may be loaded with data by using the LOAD command and the contents can be output onto the TTY by using the BUFF command without indicating which buffer to output (it defaults to the active maintenance buffer).

Exit maintenance mode

To ensure that CDR does not stay in maintenance mode forever, CDR starts a 30 second timer whenever it receives a request for maintenance mode. If this timer expires, CDR resets maintenance mode. To prevent this, CDM sends a message every 5 seconds to keep the CDR in maintenance mode.

If CDM does not send the message in time, CDR will reset maintenance mode and a CDM017 message will appear to indicate that maintenance mode has been lost. Pressing the UNLOAD button on CDR will also cancel maintenance mode.

The CDR may also be released from maintenance mode using the FREE command. When CDR leaves maintenance mode it returns to the state it was in before it entered maintenance mode. That is, if it was in a state in which it would not attempt to write on the drive, it will still not try to use the drive.

However, if it was using the drive before it entered the maintenance mode, it will use one of two methods to return to using the drive:

- If it left maintenance mode because of a time-out, it will rewind to LP and search for the first tape mark to locate the place where it should begin writing.
- If the FREE command was used to release it from maintenance mode, it will begin writing on the tape wherever the tape is. Thus, the tape should be left at the same point it was before maintenance mode was entered.

Ensure tape integrity

The following procedure is recommended to ensure tape integrity if manual tasks are to be performed on the drive using CDM:

- 1 UNLOAD the call recording tape from the drive.
- 2 Mount a scratch tape and put the drive on line but do not use any of the CDR pushbuttons. Call records are now being stored in tape buffers so this should only be done at low traffic periods.
- 3 Use CDM to issue the PORT and GET commands.
- 4 Perform tests using manual functions.
- 5 Issue the FREE command.
- 6 UNLOAD the scratch tape.
- 7 Remount the call-recording tape and press RESTORE to get the tape to the proper position for writing. If the tape is nearly full, a new call recording tape might be loaded instead to save time.

Verify proper recording

To verify that call records are being properly recorded on tape, the following procedure may be used:

- 1 Issue the PORT and GET commands to go into maintenance mode.
- 2 Issue the FUNC BKSP 1 command to position the tape just before the most recently written block.
- 3 Issue the FUNC READ command to read the most recently written block.
- 4 Issue the BUFF command to output the contents of the maintenance buffer on your I/O device.
- 5 Issue FREE to release the drive from maintenance mode.

This procedure may be modified easily to allow the checking of tape blocks older than the most recent. Extreme caution is advised, however, as it is easy to lose track of where the tape is positioned.

If it is suspected that the tape may not be positioned just after the last data block on tape when the FREE command is about to be issued, simply abort the program (****). This will cause the CDR machine to time out from maintenance mode after 30s, after which CDR will automatically restore tape position so that data recording can continue normally.

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Basic commands

On Option 11 systems, Overlay 42 commands are available as described below, with the exception that on Option 11, ESDI ports are used instead of SDI ports.

BLOC	Output hexadecimal contents of CDR tape block
BUFF	Output contents of CDR maintenance mode buffer
BUFF x	Output contents of tape buffer x
CCDS x	Clear maintenance display of CDR on link x
CDSP	Clear the maintenance display on active CPU to 00 or blank
CMIN AL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DIS LINK x	Disable device on link x
DIS SL1 x	Disable CDR device x
DIS TTY x	Disable device x
DISP pg addr cnt	Display CDR storage
ECHO x y	Perform echo test on link x, y times
END	Terminate command in progress
ENL LINK x	Enable link x
ENL SL1 x	Enable SL-1 machine connected to CDR link x
ENL TTY x	Enable TTY x
FREE	Release CDR from maintenance mode
FUNC function	Initiate specified tape drive function
GET	Put CDR tape unit into maintenance mode
LOAD xxxx	Set buffer for a WRITE
PORT	Reset port
PORT x	Set up links for commands to follow
STAT x	Get status of SDI x
STAT SL1 ALL, x	Get status of one or all CDR ports
STOR pg addr	Alter CDR storage information
TEST x	Write x sets of test records to tape

Alphabetical list of commands

Command	Description	Pack/Rel
BLOC	Output hexadecimal contents of CDR tape block.	clnk-1
BUFF	Output contents of CDR maintenance mode buffer.	clnk-1
BUFF x	Output contents of tape buffer x. For a single port CDR machine, $0 < x < 6$. For a 32K machine, $0 < x < 29$. The contents of the buffer may change while it is being output.	clnk-1
CCDS x	Clear maintenance display of CDR on link x.	clnk-1
CDSP	Clear the maintenance display on active CPU to 00 or blank.	clnk-1
CMIN ALL	Clear minor alarm indication on all attendant consoles.	clnk-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	clnk-1
DIS LINK x	Disable device on link x.	clnk-1
DIS SL1 x	Disable CDR device x. This command should be issued before disconnecting another SL-1 machine from a multi-port CDR machine. DIS SL-1 x is the inverse of ENL SL-1 x. The commands may NOT be used to disable the SDI port currently being used by the CDM program; i.e., "you can't disable yourself." The enabled/disabled status of a SL-1 port in a multi-port CDR machine is maintained by the CDR machine only. If the CDR machine initializes for any reason - such as a power failure - then the enabled/disabled status of each SL-1 port is set according to whether the physical SDI device responds. For this reason, the enabled/disabled status of a SL-1 port in a multi-port CDR machine should not be considered trustworthy over extended periods of time.	clnk-1

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Note also that disabling a SDI port in the CDR using the DIS SL-1 x command causes the report "SL1 x DSBL <type> SOFT" to be given by STAT SL1 x. This status indication remains even after the SDI pack has been physically pulled out, until the next CDR initialization.

DIS TTY x	Disable device x. You may not disable the TTY you are logged into.	clnk-1
DISP pg addr cnt	<p>Display CDR storage. Where:</p> <p>pg = memory page 0, 2 or 3.</p> <p>cnt = the number of words to output. If cnt is not entered, one word will be output. No checking is performed on the validity of the address. If an invalid address is provided, the CDR machine will trap with a response time-out.</p> <p>This command can be used to continue printing buffer contents, if time-out or transmission error occurs using the BUFF x command, rather than reissuing BUFF x and starting from the beginning again. In this case, the command is: DISP O addr 100</p> <p>addr = given by the last 4-digit hexadecimal code preceding the colon in the last printed line.</p>	clnk-1
ECHO x y	<p>Perform echo test on link x, y times.</p> <p>A test pattern is sent to the CDR machine and the machine echoes it back. OK is output if a successful response indicates a fault-free link. If y is not provided, the test is performed once only.</p>	clnk-1
END	Terminate command in progress. This command may be output at any time.	clnk-1
ENL LINK x	Enable link x. The specified link is checked for response and stuck interrupt. OK is output and the link enabled if the tests are passed.	clnk-1
ENL SL1 x	<p>Enable SL-1 machine connected to CDR link x.</p> <p>This command is only valid for multi-port CDR machines. It enables new SL-1 machines connected to the CDR machine to communicate with the CDR, without interruption of service to existing SL-1 machines.</p>	clnk-1

ENL TTY x	<p>Enable TTY x.</p> <p>The specified TTY is checked for response and stuck interrupt. OK is output and the TTY is enabled once the tests are passed.</p>	clnk-1
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FREE	<p>Release CDR from maintenance mode.</p> <p>If the CDR tape drive is enabled, then the next tape block that CDR has to write will be written wherever the tape was left. Thus, if the FUNC command was used on a tape which is to contain valid CDR data, it is imperative that the user reposition the tape to the same position that CDR had it before the FUNC command was used.</p>	clnk-1
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FUNC function	<p>Initiate specified tape drive function. Initiates the specified function on the tape drive.</p> <p>"Function" may be one of:</p> <ol style="list-style-type: none"> 1. STAT = status function 2. WID = write ID burst function 3. WTM = write tape mark 4. WFB = write contents of the maintenance tape buffer 5. READ = read block into maintenance buffer 6. RBC = perform read back check into maintenance buffer 7. SKIP x = skip x blocks in hexadecimal number 8. ERG = erase gap 9. ERAS = erase to end of tape 10. BKSP x = backspace x blocks in hexadecimal number 11. REW = rewind 12. UNL = unload 13. TERM = terminate 	clnk-1
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These commands correspond to the primitive tape functions supported by the CDR tape handler firmware. The FUNC STAT command causes the tape status to be printed at the TTY.

The tape status is the first word printed in response to the BLOC command and is the "status" field of a CDM122 error message. If the "unexpected interrupt" bit in the tape status is ON, a word corresponding to the "unexpected" field in a CDM122 message is printed.

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GET	<p>Put CDR tape unit into maintenance mode.</p> <p>When CDR is in this mode, it will not initiate any tape functions of its own. A tape buffer will be allocated for CDM to use for tape functions. Only one SL-1 system may put the CDR into maintenance mode at one time. See the description of maintenance mode.</p>	clnk-1
LOAD xxxx	<p>Set buffer for a WRITE.</p> <p>The hexadecimal digits xxxx are propagated through the tape buffer allocated for maintenance mode. The command is used to set the buffer for a WRITE.</p>	clnk-1
PORT	<p>Reset port.</p> <p>Resets the port so that no port is active. Enter the following commands only after a PORT command, and only from a TTY:</p> <p>DISP STOR BLOC TEST x BUFF (continued on next page) BUFF x GET LOAD xxxx FUNC FREE ENL SL-1 x DIS SL-1 x STAT SL-1 x</p>	clnk-1

PORT x	<p>Sets the links to which the following commands will apply. This command may only be entered from a TTY. Take care when using the following commands with PORT or PORT x, as the CDR may trap data or write erroneous data to tape.</p> <p>DISP STOR BLOC TEST x BUFF BUFF x GET LOAD xxx FUNC FREE ENL SL-1 x DIS SL-1 x STAT SL-1 x</p>	clnk-1
STAT	<p>Lists all SDI packs and specifies whether they are dedicated to data links or TTY; enabled or disabled. Output is:</p> <pre>SDI x <tty/link> <enbl/dsbl><messages> <naks> <time-outs> <lost></pre> <p>If the device is an enabled link, then the number of messages sent, the number of transmission errors and the number of lost call records are also output. See error code CDM121 for a description of the <> fields.</p>	clnk-1
STAT SL1 ALL, x	<p>Get status of one or all CDR ports. This command is used to output the status of ports in multiport CDR machines.</p> <p>The format of the output is: status type mode</p> <p>Where:</p> <p>status = UNEQ (unequipped), DSBL (Disabled) or ENBL (enabled)</p> <p>type = SNGL (single-port SDI) or DUAL (dual-port SDI)</p> <p>mode = May be IDLE (normal idle), BUSY (normal busy), SOF (software-disabled), NOIS (disabled for too many interrupts), STUC (disabled for stuck interrupt condition) or EIA (disabled for having EIA device not ready)</p>	clnk-1

LDs 40, 42

STAT x	<p>Get status of SDI x. Output is:</p> <p><tty/link> <enbl/dsbl/uneq> <messages> <naks> <time-outs> <lost></p> <p>See error code CDM121 for a description of the <> fields.</p>	clnk-1
STOR pg addr	<p>Alter CDR storage information.</p> <p>The old contents of the location is output and the user is prompted for the new contents. After entering the new contents, enter a space or carriage return.</p> <p>If a carriage return is entered, the command ends. If a space is entered, the contents of the next location are output and the user is prompted for input. If only the carriage return or space is entered (i.e., the new contents are not input), then the current word is not modified. If an invalid address is provided, CDR will response time-out.</p>	clnk-1
TEST x	<p>Write x sets of test records to tape.</p> <p>Before using this command, refer to the description of the maintenance mode prior to this table. If x is not given, the default is 1.</p> <p>As this command writes to tape, a scratch tape should be mounted before the command is executed. PORT and GET commands must be issued before this command can be used.</p> <p>Twenty blocks of data are written to the tape, then the tape is rewound and read to check the data. The number of errors found is output using a CDM035 message.</p>	clnk-1

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LD 43: Equipment Datadump

This program is used to keep data on the system storage device up to date. When the datadump program is invoked, data in the read/write memory (including any that has been changed or added) is written to the storage device at the location reserved for it.

Option 11 systems maintain two copies of customer data. The Primary copy on the Flash ROM software cartridge that is mounted on the CPU/Conf card and the Secondary copy on the core system CPU/Conf card Flash ROM. The datadumping commands for Option 11 systems allow data to be stored in a non-volatile media for backup and upgrade purposes. Off-site storage of customer data is addressed on the Option 11 by the NTAK80 backup cartridge or by Remote Backup onto a PC.

The program can be invoked daily as part of the daily routines or loaded manually. An incremental datadump occurs during the daily routines if database changes have been made.

Options 51C, 61C, 81 and 81C utilize two CMDUs and disk redundancy, LD 43 commands apply to both sides of the system. Refer to the specific commands for the differences between Options 51C, 61C, 81 or 81C and other systems. Refer to System installation (553-3001-210) for general information.

Following a successful EDD on Options 51C, 61C, 81 and 81C, the "HI" (Hardware Infrastructure) string is output.

When the datadump fails

In the event of an unsuccessful initial dump, the office data on the tape or disk is suspect. Another datadump with spool option should be done on the same tape or disk; if successful, a transient error is indicated and normal procedures can be resumed. If this second attempt also fails, **DO NOT** attempt another datadump until the fault is isolated and corrected.

If the storage medium is not proved faulty and the storage device appears serviceable, datadumping to an OLD tape or disk, if available, may help to pinpoint the problem.

Except during the troubleshooting phase, storage medium which has failed to datadump successfully must not be left in the storage device. Should a SYSLOAD occur with such a storage medium, the load may terminate abnormally with unpredictable results.

Low memory warning

Unprotected data store equal in size to the length of the records being written (i.e., 512 words) must be available to the datadump program.

A low memory warning message (SCH603) is issued when spare unprotected data store falls below a given threshold. Once this warning message has been issued, it is not possible to perform a datadump as the system requires spare unprotected data store equivalent to the size of a record on the storage medium (i.e., 512 words).

Users should ensure that these amounts of spare unprotected data store are available before attempting to perform a datadump.

Option 11 ROM selection for SYSLOAD

The following table shows where the system will load from with the software cartridge Flash ROM and CPU/Conf card Flash ROM in their different states.

CPU/Conf Card Flash ROM State	Software Cartridge Flash ROM State			
	PREP	EDD	UPG	UPS
PREP	Cartridge	Cartridge	Cartridge	Cartridge
EDD	Cartridge	Cartridge	Cartridge	CPU/Conf
UPG	CPU/Conf	Cartridge	Cartridge	CPU/Conf

The state of both the CPU/CONF card Flash ROM and the Software Cartridge Flash ROM determine where the data is loaded from during SYSLOAD.

The following message occurs on SYSLOAD:

DATA FROM XXXXX YYY/ZZZ

Where:

Code	Represents	Description
XXXXX	SCORE	Data is loaded from the CPU/Conf Flash ROM during SYSLOAD
	CART	Data is loaded from the software cartridge Flash ROM during SYSLOAD
YYY	CPU/CONF card state	(PREP, EDD or UPG)
ZZZ	S/W cartridge state	(PREP, EDD, UPS or UPG)

Note: Software cartridges are sent from the factory in the PREP state.

Basic commands

The following commands are applicable to all machines, except Option 11 systems. See the list of Option 11 system commands for further information.

BKO	Copy data from primary to backup device
DAT	Print the data issue and creation date of the primary and backup database
EDD	Invoke datadump program
EDD CLR	Clear datadump inhibit flag
EDD CN	Save CND names (use prior to datadump)
EDD DP xx xx ..xx	Dump patch
EDD GP	Get patch
EDD HM	Save AWU, RMS and MR data (prior to dump)
EDD IWC	Inhibits write check: caution
EDD NBK	Inhibit database backup
EDD NS	Inhibit tape far-end spool
EDD NX	Write tape data records
EDD SA	Complete data dump and bypass software audit
EDD SP	Spool tape to far-end
PBX CF6 (ALLOWED)	Bit dumped with PBX data block
RES	Copy entire contents of backup to primary device
SWP	Swap (exchange) main and ".bak" data files on the primary flash drive

Option 11/11E commands

Please note that the Option 11E displays a percentage symbol (%) on the TTY (approximately one symbol every two seconds) to signify that a command listed below is being executed. To avoid data corruption, do not attempt to exit the Overlay or enter another command until the last command entered has been fully executed.

Additional information on upgrade procedures is contained in the Option 11 Administration Guide.

BKO	Copy data from primary to backup device
DAT	Print the data issue and creation date of the primary and backup database
EDD	Invoke datadump program
EDD CLR	Clear datadump inhibit flag
EDD DP xx xx.... xx	Customer data and the specified patches (xx xx...xx) are dumped onto disk
EDD DR1	Clears pre-programmed data from a software cartridge in PREP state
EDD GP	Get patches
EDD HM	Save AWU, RMS and MR data (prior to dump)
EDD NBK	Dumps data only to the Flash ROM on the software cartridge, and marks it as an "EDD" copy
EDD SDI	Dump data in ASCII format out the active SDI port
RES	Restore files to the primary device from the external backup device
SWP	Swap (exchange) main and ".bak" data files on the primary flash drive
UPG	Upgrade
UPS	Force the system to load the customer data from the Flash ROM on the CPU/Conf card

Option 11C commands

BKO	Copy data from primary to backup device
DAT	Print the data issue and creation date of the primary and backup database.
EDD	Invoke data dump and write entered data to the primary and internal backup drives
EDD CLR	Clear datadump inhibit flag
EDD HM	Save AWU, RMS and MR data (prior to dump)
EDD IWC	Inhibits write check (for emergency use only)
EDD NBK	Invoke data dump and write entered data to the primary and internal backup drives
RES	Restore files to the primary device from the external backup device
RIB	Restore backup files from the internal backup device into the primary device
SWP	Swap (exchange) main and ".bak" data files on the primary flash drive

Alphabetical list of commands

Command	Description	Pack/Rel
BKO	Copy data base from primary device (Winchester disk) to backup device (floppy disk). BKO is applicable to systems with hard disk storage, including Option 11 and Option 11C.	basic-19
DAT	Print the creation date of the main, secondary, or backup database. The DAT command may be used for both Option 11 and Option 11C systems.	basic-18
EDD	Invoke datadump program non-Option 11 Systems, Option 11, and Option 11C. For system Option 81, EDD creates backups to floppy disks for both CMDUs if redundancy is in effect and both CDMUs contain floppy disks. For system Option 61C, EDD creates backups to floppy disks for the active CDMU. This command dumps data to the Flash ROMs on both the CPU/Conf card and the software cartridge., and marks each as an "EDD" copy.	basic-1
EDD CLR	Clear datadump inhibit flag This flag is set because SYSLOAD or the conversion programs detect incomplete or inconsistent equipment data. Exercise caution since the use of this option may result in incorrect data being written. The EDD CLR command may be used for both Option 11 and Option 11C systems.	basic-1
EDD CN	Save CND names. EDD CN saves the names associated with DNs for Caller's Name Display. Use Prior to datadump.	basic-1
EDD DP xx xx xx...	Dump patch Customer data and the specified patches (xx xx...xx) are dumped onto disk. If no patch numbers are specified, then only customer data is dumped. The EDD DP command may be used for Option 11, but it is not supported for Option 11C systems.	basic-18

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EDD DR1	<p>Clears pre-programmed data</p> <p>Any service change which would cause LD 43 to be run under midnight routines will also block an EDD DR1 command, even if the cartridge is in the PREP state. If this occurs the EDD DR1 may still be done by reloading the software cartridge and then performing the EDDpDR1.</p> <p>The EDD DR1 command may be used for Option 11, but it is not supported for Option 11C systems.</p>	basic-18
EDD GP	<p>Get patches</p> <p>The non-patch customer data from the core memory is placed on the new disk without overwriting the preloaded patches on the disk. Any patches in the system are also ignored.</p> <p>The EDD GP command may be used for Option 11, but it is not supported for Option 11C systems.</p>	ph-6
EDD HM	<p>Saves Automatic Wake Up (AWU), Room Status (RMS) and Message Registration (MR) data. Use prior to datadump, then system load. This should be performed prior to a SYSLOAD or software conversion.</p> <p>The EDD HM command may be used for both Option 11 and Option 11C systems.</p>	basic-1
EDD IWC	<p>Inhibits write check.</p> <p>Caution: for Emergency Use Only. Inhibits write check. This command is useful when the standard commands for datadump fail and end-of-file cannot be found. It writes an end-of-file on tape and allows other commands to be invoked.</p> <p>The EDD IWC command may be used for both Option 11 and Option 11C systems.</p>	basic-1
EDD NBK	<p>Inhibit database backup.</p> <p>Indicates that a database backup should not be done after a datadump. (Applicable to hard disk storage with floppy disk backup). (For non-Option 11 systems)</p> <p>For Option 11 sytems, this command dumps data only to the Flash ROM on the software cartridge, and marks it as "EDD" copy.</p> <p>For Option 11C systems, this command invokes a data dump and writes entered data to primary and internal backup drives.</p>	basic-1

EDD NS	<p>Inhibit tape far-end spool.</p> <p>Tape will not spool to the far-end and will not perform write test. Default option is SP. Overlay program cannot be aborted until writing has either been completed or has failed.</p> <p>This command applies to systems equipped with tape units.</p>	basic-1
EDD NX	<p>Writes tape data records consistent in size with predefined system values. Default option is NX.</p>	basic-1
EDD SA	<p>This command is used to complete the data dump and bypass the software audit of Peripheral Controller and superloop data.</p>	basic-18
EDD SDI	<p>Datadump to active SDI port.</p> <p>For information on backing up your data onto a backup cartridge or a PC, please refer to either the Option 11 Administration Guide or the Option 11 Customer Configuration Backup and Restore Guide.</p> <p>The EDD DR1 command may be used for Option 11, but it is not supported for Option 11C systems.</p>	
EDD SP	<p>Spool tape to far-end. This command applies to systems equipped with tape units.</p> <p>Spools tape to the far-end in order to even the tension on the tape. Also writes a test record after the end of existing data to check for any write problems. If errors occur during test, data should remain intact.</p>	basic-1
PBX CF6 (ALLOWED)	<p>Bit dumped with PBX data block.</p>	basic-1
RES	<p>Copy entire contents of backup device (floppy diskettes) to primary device (Winchester disk). Applicable to Meridian 1/Meridian SL-1 with hard disk storage.</p> <p>For Options 51C, 61C, 81 and 81C, this command copies the contents of the floppy disks on the active CMDU to both hard disks providing redundancy is in effect. If redundancy is not in effect, this command copies the floppy disk contents to the active CMDU.</p> <p>For Options 11 and 11C in X11 Release 22, the RES command may be entered to restore files to the primary device from the external backup device.</p>	basic-19

LD 43

RIB	Restore backup files from the internal backup device into the primary device (Option 11C)	opt11c-22
SWP	Exchange (swap) main and secondary database files. A sysload is required for the swap to take effect. The SWP command may be used for both Option 11 and Option 11C systems.	basic-19
UPG	Upgrade This command dumps data to the Flash ROMs on both the CPU/Conf card and the software cartridge, and marks both ROMs as "UPG" copies. The UPG command may be used for Option 11, but it is not supported for Option 11C systems.	basic-1
UPS	Force the system to load the customer data from the Flash ROM on the CPU/Conf card Data is dumped to the Flash ROM on the software cartridge only, and marked as a "UPS" copy. The UPS command may be used for Option 11, but it is not supported for Option 11C systems.	basic-1

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LD 44: Software Audit

The audit program (LD 44) monitors system operation and provides an indication of the general state of system operation. The program is concerned mostly with the system software. When a software problem is encountered, the program outputs an AUD message and attempts to clear the problem automatically.

With X11 Release 23 the audit program is changed to recognize and handle various new scenarios added by Music or Recorded Announcement Broadcast features. The following new checks are performed by audit for broadcasting trunks:

- Check the list of call registers connected to the broadcasting trunk and verify that the size of this list matches the number of callers connected according to the counter in the unprotected trunk block
- ensure that a trunk marked as broadcasting does indeed have more than one caller connected to it
- go through the list of call registers connected to the broadcasting trunk and ensure that the list is linked correctly from beginning to end
- all call registers in the broadcasting trunk call register list should point back to the broadcasting trunk
- various checks are done on the connections for a broadcasting call
- check through the list of call registers queued for and ensure the list is linked correctly from beginning to end

Running software audit

The Audit program is enabled as a Background Program or Daily Routine in the configuration record. See prompts BKGD and DROL in LD 17. To load the Audit program manually, enter:

LD 44

R x

Where, x is the number of audit passes required.

Enter 0 for continuous auditing. R and x must be separated by a space or the system responds with:

```
AUD REQ ERR.  
AUDIT
```

The Meridian Mail MP data base audit (co-administration) is run during Audit if a data base mismatch is known by the system, or if it is being run manually.

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LD 45: Background Signaling and Switching Diagnostic

This program performs network continuity tests and outputs detected problems via BSD messages.

The Manual Continuity Test (MCT) allows you to isolate intermittent faulty points reported by the Background Continuity Test (BCT). For example, BCT reports faults between A, B, and C. Run the MCT between A and B, then between B and C to determine how often it fails.

When run in background, LD 45 tests the following on all enabled network loops:

- the continuity of the speech path between each network card and its associated PE shelves is tested
- the continuity of the speech path between all network card is tested
- non functioning paths between network cards are identified

Note: When running in background, only new faults detected are output.

For systems running Release 15 and later, memory and signaling tests are only performed in LD 30. If LD 45 is included in background or midnight routines it is recommended that LD 30 also be included. By including LD 30, bad memory areas will be flagged before the continuity tests of LD 45 which will improve fault isolation.

On Option 11 systems, this Overlay program is not available. Use Overlay program 30 (LD 30) to perform signaling tests on these systems.

Using the manual extended continuity (XCON) command

The XCON command is used to test various communication paths on or between NT8D04 Network, NT8D01 Controller, Multipurpose ISDN Signaling Processor (MISP), S/T-Interface Line (SILC) and U-Interface Line (UILC) cards. There are 10 paths XCON may test. Table 10 and Table 11 show 8 of these paths. Only 1 XCON test at a time can be run on a superloop.

To begin a manual extended continuity test, enter one of the following:

- XCON 0 = perform test once and output results
- XCON H hhh = repeat test for hhh hours (hhh = 1-255)
- XCON M mmm = repeat test for mmm minutes (mmm = 1-255)
- XCON S sss = repeat test for sss seconds (sss = 1-255)

After you enter a XCON command, you are prompted for a combination of the values listed below. The responses to these prompts determine the test performed.

Prompt — Response — Comment

DSL T — xx — Timeslot (2-31, 34-63, 66-95, 98-127) for Network Card associated with detector Controller.

GSL T — xx — Timeslot (2-31, 34-63, 66-95, 98-127) for Network Card associated with generator Controller.

JUNC — x — Junctor number (0-7).

LBTN — l s c u — Terminal Number (loop, shelf, card, unit) to be loopback point.

LBTY — N/P — Loopback address: N = Network Card, P = Controller or terminal.

Note: When using XCON Test 9 for ISDN BRI, the possible responses for LBTY are 3 or 4. 3 indicated the test will take place with the DSL enabled; 4 performs the test with the DSL disabled.

PATT — x — Test pattern number (0-7). Signal sent by the generator to the detector. You should run a test several times with varying patterns.

SLOT — xx — Timeslot (2-31, 34-63, 66-95, 98-127). Enter return (<cr>) to select a random timeslot.

SUPL — l — Superloop number (0-156, in multiples of 4).

TAG — x — Tag number (1-15) returned by the system. Tag number 0 is used for one-shot tests (XCON 0).

TEST — x — Test case number (1-8).

TN — l s c u — Controller or terminal (loop, shelf, card, unit) to be the detector. For Controller, enter any valid TN on Controller's shelf. For special loopback channel enter: l s 99 0.

TYPD — N/P — Pattern detector: N = Network Card, P = Controller.

TYPG — N/P — Pattern generator: N = Network Card, P = Controller.

Figure 10
XCON test paths

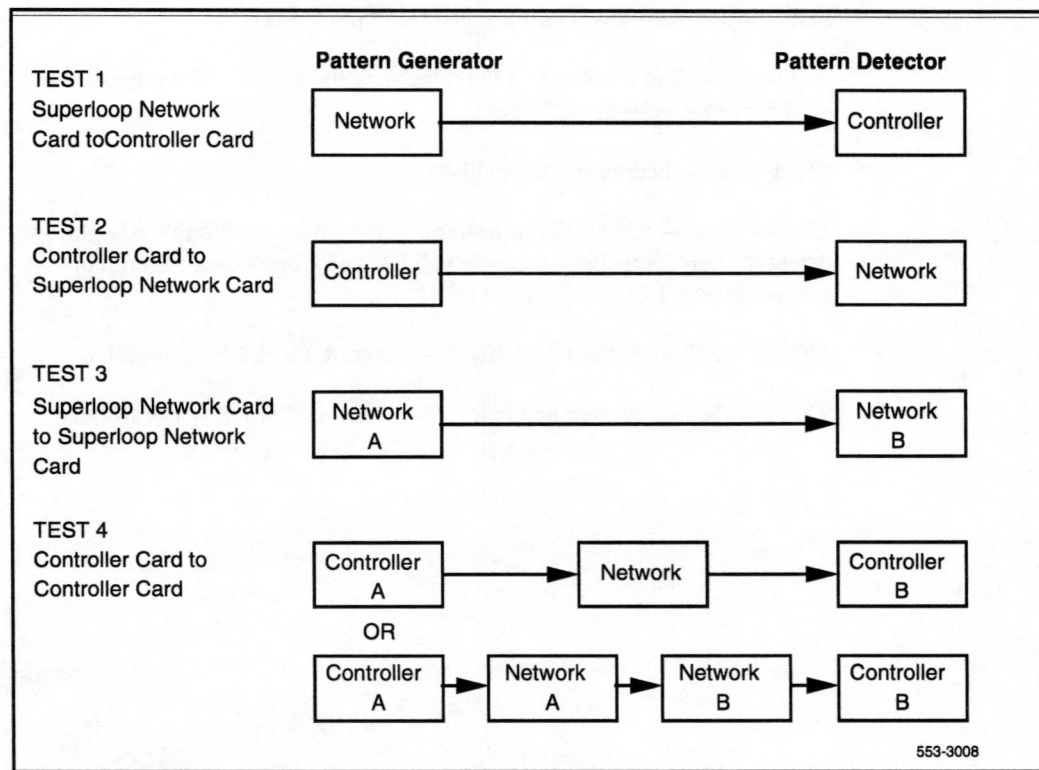
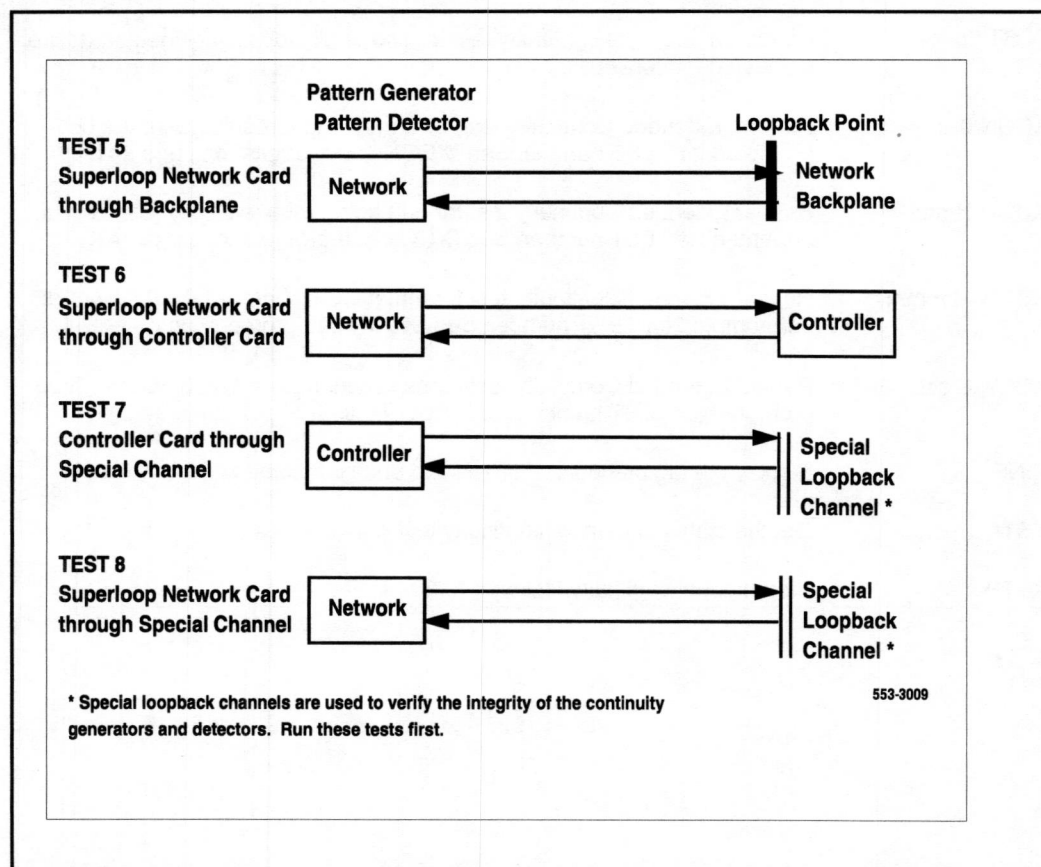


Figure 11
XCON test paths (continued)



Basic commands

NSIG	Perform the network memory and continuity tests (Release 14 and earlier)
TEST (loop)	Perform a complete continuity test for one or all loops. Unplugged cards are not tested for continuity.
XCON 0	Perform Extended Continuity test once and output results. User will be prompted for TEST number. See "XCON sub-prompts" on page 241.
XCON H hhh	Repeat Extended Continuity test for hhh hours (hhh = 1-255). User will be prompted for TEST number. See "XCON sub-prompts" on page 241.
XCON M mmm	Repeat Extended Continuity test for mm minutes (mm = 1-255). User will be prompted for TEST number. See "XCON sub-prompts" on page 241.
XCON S sss	Repeat Extended Continuity test for ss seconds (ss = 1-255). User will be prompted for TEST number. See "XCON sub-prompts" on page 241.
XINF	Display the tag numbers of all running and completed continuity tests
XSTA x	Get the status of manual continuity test with TAG = x
XSTP x	Stop manual continuity test with TAG = x

XCON sub-prompts

TEST = 1

Test Path	Network Card to Controller. This test uses the Network Card (NT8D04) as a pattern generator and the Controller (NT8D01) as the detector.		Pack/Rel xpe-15
Prompt	Response	Description	
TEST	1	Network Card to Controller	
TYPE	SL	Test superloop (SL)	
PATT	x	Pattern (0-7)	
TYPG	N	Network Card is generator	
SUPL	loop	0-156 in multiples of 4	
SLOT	xxx	Timeslot 2-31, 34-63, 66-95, 98-127. SLOT appears if Remote IPE package 286 is not equipped.	
TYPD	P	Controller is detector E1 Carrier = Timesot : 0 = 5-31 ; 1 = 37-63 ; 2 = 69-95 T-1 Carrier = Timesot : 0 = 5-25 ; 1 = 37-57 ; 2 = 69-89	
TN	I s c u	Valid TN on the Controller	
TAG	xx	Tag number (1-15) assigned by the system	

TEST = 2

Test Path	Controller to Network Card. This test uses the Controller (NT8D01) as a pattern generator and the Network Card (NT8D04) as the detector.		Pack/Rel xpe-15
Prompt	Response	Description	
TEST	2	Controller to Network Card	
PATT	x	Pattern (0-7)	
TYPG	P	Controller is generator	
TN	I s c u	Valid TN on the Controller	
TYPD	N	Network Card is detector	
SUPL	loop	0-156 in multiples of 4	
SLOT	xxx	Timeslot 2-31, 34-63, 66-95, 98-127	
TAG	xx	Tag number (1-15) assigned by the system	

TEST = 3

Test Path	Network Card to different Network Card. This test uses the Network Card (NT8D04) as a pattern generator and another Network Card as the detector.		Pack/Rel xpe-15
Prompt	Response	Description	
TEST	3	Network Card to different Network Card	
PATT	x	Pattern (0-7)	
TPG	N	Network Card is generator	
SUPL	loop	0-156 in multiples of 4	
SLOT	xxx	Timeslot 2-31, 34-63, 66-95, 98-127	
TPD	N	Network Card is detector	
SUPL	loop	0-156 in multiples of 4	
SLOT	xxx	Timeslot 2-31, 34-63, 66-95, 98-127	
JUNC	x	Juncor if Network cards in different groups	
TAG	xx	Tag number (1-15) assigned by the system	

TEST = 4

Test Path	Controller to different Controller. This test uses a Controller (NT8D01) as a pattern generator and another Controller as a detector. The pattern is sent through one or two Network Cards (NT8D04).		Pack/Rel xpe-15
Prompt	Response	Description	
TEST	4	Controller to different Controller	
PATT	x	Pattern (0-7)	
TPG	P	Controller is generator	
TN	I s c u	Valid TN on the Controller	
TPD	P	Controller is detector	
TN	I s c u	Valid TN on the Controller	
GSLT	xxx	Timeslot 2-31, 34-63, 66-95, 98-127 on generator Network Card	
DSL	xxx	Timeslot 2-31, 34-63, 66-95, 98-127 on detector Network Card	
JUNC	x	Juncor if Network cards in different groups	
TAG	xx	Tag number (1-15) assigned by the system	

TEST = 5

Test Path	Network Card to Network Card (loop back at backplane). This test uses the Network Card (NT8D04) as a pattern generator and detector. The pattern is sent to the network backplane and back.		Pack/Rel xpe-15
Prompt	Response	Description	
TEST	5	Network Card to Network Card (loop back at backplane)	
PATT	x	pattern (0-7)	
TYPG	N	Network Card is generator	
SUPL	loop	0-156 in multiples of 4	
SLOT	xxx	timeslot 2-31, 34-63, 66-95, 98-127	
TYPD	N	Network Card is detector	
SUPL	loop	0-156 in multiples of 4	
SLOT	xxx	timeslot 2-31, 34-63, 66-95, 98-127	
LBTY	N	through network backplane	
TAG	xx	tag number (1-15) assigned by the system	

TEST = 6

Test Path	Network Card to Network Card (loop back through Controller). This test uses the Network Card (NT8D04) as a pattern generator and detector. The pattern is looped back through a Controller (NT8D01).		Pack/Rel xpe-15
Prompt	Response	Description	
TEST	6	Network Card to Network Card (loop back through Controller)	
PATT	x	Pattern (0-7)	
TYPG	N	Network Card is generator	
SUPL	loop	0-156 in multiples of 4	
SLOT	xxx	Timeslot 2-31, 34-63, 66-95, 98-127	
TYPD	N	Network Card is detector	
SUPL	loop	0-156 in multiples of 4	
SLOT	xxx	Timeslot 2-31, 34-63, 66-95, 98-127	
LBTY	P	Through Controller	
LBTN	I s 99 0	Special Controller loop back channel	
TAG	xx	Tag number (1-15) assigned by the system	

TEST = 7

Test Path	Controller to Controller (special loop back channel). This test uses the Controller (NT8D01) as a pattern generator and detector. The pattern is looped back through a special loop back channel.		Pack/Rel xpe-15
Prompt	Response	Description	
TEST	7	Controller to Controller (special loop back channel)	
PATT	x	Pattern (0-7)	
TYPG	P	Controller is generator	
TN	I s 99 0	Special Controller loop back channel	
TAG	xx	Tag number (1-15) assigned by the system	

TEST = 8

Test Path	Network Card to Network Card (special loop back channel). This test uses the Network Card (NT8D04) as a pattern generator and detector. The pattern is looped back through a special channel which is specified by timeslot 128.		Pack/Rel xpe-15
Prompt	Response	Description	
TEST	8	Network Card to Network Card (special loop back channel)	
PATT	x	Pattern (0-7)	
TYPG	N	Network Card is generator	
SUPL	loop	0-156 in multiples of 4	
SLOT	128	Special Network loop back channel	
TAG	xx	Tag number (1-15) assigned by the system	

TEST = 9

Test Path	Loop back test on Digital Subscriber Loop. This test uses the MISP as a pattern generator and detector. The pattern goes through the Network and Controller Card and is looped back at a single DSL. Both B- and D-channels are looped back.		Pack/Rel bri-18
Prompt	Response	Description	
TEST	9	Loop back test on Digital Subscriber Loop	
PATT	x	Pattern (0-7)	
TYPG	N	Network Card is generator	
SUPL	loop	0-156 in multiples of 4	
SLOT	128	Special Network loop back channel	
LBTY	3	DSL is requested for loop back	
LBTN	l s c d	Address of DSL	
TAG	xx	Tag number (1-15) assigned by the system	

TEST = 10

Test Path	Loop back test on BRI line card. This test uses the MISP as a pattern generator and detector. The pattern goes through the Network and Controller Card and is looped back at the line card level (i.e., bus loop back). Both B- and D-channels are looped back.		Pack/Rel bri-18
Prompt	Response	Description	
TEST	10	Loop back test on BRI line card	
PATT	x	Pattern (0-7)	
TYPG	5	MISP is generator	
SUPL	loop	0-156 in multiples of 4	
SLOT	128	Special Network loop back channel	
LBTY	4	loop back at line card	
LBTN	l s c d	Address of DSL	
TAG	xx	Tag number (1-15) assigned by the system	

Alphabetical list of commands

Command	Description	Pack/Rel
NSIG	Perform the network memory and continuity tests (Release 14 and earlier). No signaling test is done. All faults detected are reported. If no faults are detected, "OK" is output. This command is not available in Release 15 and later.	basic-1
TEST (loop)	Perform a complete continuity test for one or all loops. Performs a complete test and reports all faults detected (even if they have been previously reported).	basic-1
XCON 0	Perform Extended Continuity test once, then output results. After entering this command, you will then be able to select and conduct 1 of 10 possible XCON tests. These XCON tests begin on page 241.	xpe-15
XCON H hhh	Perform Extended Continuity test for hhh (1-255) hours, then output results. After entering this command, you will then be able to select and conduct 1 of 10 possible XCON tests. These XCON tests begin on page 241.	xpe-15
XCON M mmm	Perform Extended Continuity test for mmm (1-255) minutes, then output results. After entering this command, you will then be able to select and conduct 1 of 10 possible XCON tests. These XCON tests begin on page 241.	xpe-15
XCON S sss	Perform Extended Continuity test for sss (1-255) seconds, then output results. After entering this command, you will then be able to select and conduct 1 of 10 possible XCON tests. These XCON tests begin on page 241.	xpe-15
XINF	Display the tag numbers of all running and completed tests. The output format (where T# = Tag Number) is: RUNNING: T# T# T# T# DONE: T# T# T# T# SUSPENDED: T# T# T# T# FREE: x x (number of free tags available [0-15])	xpe-15

XSTA x Get the status of manual continuity test with TAG = x. xpe-15

Individual tests are identified by the tag number the system generates when you complete a sequence of test prompts. See also the XINF and XSTP commands.

The test status provides the following format information:

PATT x	Pattern number
GENERATE:	Generator information follows:
TYPG N/P	Network or Controller as pattern generator
SUPL x	Superloop number or TN on Controller
SLOT x	Timeslot
DETECT:	Detector information follows:
TYPD N/P	Network or Controller as pattern detector
SUPL x	Superloop number or TN on Controller
SLOT x	Timeslot
RESULTS:	Results follow:
TESTS COMPLETED:	xxxxxxx
TESTS FAILED:	xxxxxxx

XSTP x Stop manual continuity test with TAG = x. Individual tests are identified by the tag numbers. The XSTP command outputs the test status. See also XINF and XSTA commands. xpe-15

Alphabetical list of XCON sub-prompts

Prompt	Response	Description
DSLT	xxx	Timeslot (2-31, 34-63, 66-95, 98-127) for Network Card associated with detector Controller
GSLT	xxx	Timeslot (2-31, 34-63, 66-95, 98-127) for Network Card associated with generator Controller
JUNC	x	Junctor number (0-7)
LBTN	l s c u o r l s c d	Loop back Controller or Terminal Number. Where: l = loop, s = shelf, c = card, u = unit, and d = Digital Subscriber Loop (DSL).
LBTY	y	Loop back Type (3, 4, N, or P). Where: <ul style="list-style-type: none">• 3 = Digital Subscriber Loop• 4 = Line Card• N = Network Card• P = Controller or Terminal
PATT	x	Test pattern (0-7) sent by the generator to the detector
SLOT	xxx	Timeslot (2-31, 34-63, 66-95, 98-127). Enter return (<cr>) to select a random timeslot. For special loop back slot enter: 128.
SUPL	loop	Superloop number (0-156, in multiples of 4)
TAG	xx	Tag number (0-15) returned by the system. Tag number 0 is used for one-shot tests (XCON 0).
TEST	xx	XCON test path (1-10). Where: <ul style="list-style-type: none">• 1 = Network Card to Controller• 2 = Controller to Network Card• 3 = Network Card to different Network Card• 4 = Controller to different Controller• 5 = Network Card to Network Card (loop back at backplane)

- 6 = Network Card to Network Card (loop back through Controller)
- 7 = Controller to Controller (special loop back channel)
- 8 = Network Card to Network Card (special loop back channel)
- 9 = Loop back test on Digital Subscriber loop
- 10 = Loop back test on BRI line card

TN	l s c u	Controller or terminal (loop, shelf, card, unit) to be the detector. For Controller, enter any valid TN on Controller's shelf. For special loop back channel enter: l s 99 0.
TYPD	y	Type of Pattern Detector (N or P). Where: N = Network Card and P = Controller.
TYPG	y	Type of Pattern Generator (5, N, or P). Where: <ul style="list-style-type: none">• 5 = Multipurpose ISDN Signaling Processor• N = Network Card• P = Controller

LD 45

Page 250 of 472 Alphabetical list of XCON sub-prompts

Issued:	June 1999
Status:	Standard
X11 Release:	24

LD 46: Multifrequency Sender Diagnostic for Automatic Number Identification

This program is used to maintain the Multifrequency Sender card. The Multifrequency Sender pack provides multifrequency signals of Automatic Number Identification (ANI) digits over Centralized Automatic Message Accounting (CAMA) trunks to a toll switching CAMA, Traffic Operator Position System (TOPS) or Traffic Service Position System (TSPS).

The MFS diagnostic program can be run in background, during the daily routines, or manually to enter commands. It performs the following tests:

- checks that the MF Sender pack responds to system I/O functions
- tests the 30-channel memory locations, the 480 (30 x 16) digit buffer memory locations and the 64 First-in, First-out locations
- exercises all 15-digit codes with digit strings from 2 to 16 digits long and verifies both the 68 ms pulse width and whether each string outpulses to completion

No check is possible on MFS frequencies used in each tone burst due to the lack of receivers in the system. Also, no check can be made as to whether the correct digits are being outpulsed.

Program 46 is not supported on Option 11 systems.

Basic commands

CDSP	Clear the maintenance display on active CPU to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c (not applicable for Release 22)
DISL loop	Disable MFS loop
DISX loop	Disable Conf/TDS/MFS card on loop and loop + 1
END	Stop all current testing
ENLL loop	Enable loop
ENLX loop	Enable Conf/TDS/MFS card on loop and loop + 1
MFS loop	Test and enable MFS loop
STAT loop	Get status of MFS loop
TONE loop	Enter input mode to provide MF tone bursts
TONE loop ALL	Provide MF tone bursts for all digits on specified loop

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clear the maintenance display on active CPU to 00 or blank.	basic-1
CMAJ	Clear major alarm, reset power fail transfer and clear power fault alarm.	basic-1
CMIN	Clear the minor lamp on a system basis.	alarm_filter-22
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c. (not applicable for Release 22)	basic-1
DISL loop	Disable MFS loop. For NT8D17 Conference/TDS/MFS cards, see ENLL command.	basic-1
DISX loop	<p>Disable NT8D17 Conference/TDS/MFS card on loop and loop + 1.</p> <p>Disables the entire combined Conference, Tone and Digit Switch, and MF Sender (XCT) card. Both the even numbered TDS/MFS loop and adjacent conference loop are disabled.</p> <p>Where: loop = 0, 2, 4, . . . 158</p> <p>The DISL and ENLL commands can be used on the even number loop for the TDS/MFS functions. However, this only prevents the loop from being used by software and does not affect the hardware status of the card.</p> <p>The ENLX and DISX commands are recommended. The ENLX command must be used if the DISX command was used to disable the card.</p> <p>This command can be used in LD 34, LD 38 and LD 46.</p>	xct-15
END	Stop all current testing.	basic-1
ENLL loop	<p>Enable loop.</p> <p>For NT8D17 Conference/TDS/MFS cards the DISX and ENLX commands must be used whenever the faceplate switch of the card has been toggled. ENLL will software enable the card but the card will not be properly reset.</p>	basic-1

LD 46

ENLX loop	<p>Enable NT8D17 Conference/TDS/MFS card on loop and loop + 1.</p> <p>Enables all functions on the NT8D17 Conference/TDS card. Both the even numbered TDS/MFS loop and adjacent conference loop are enabled. Where: loop = 0, 2, 4. . . 158</p> <p>If one of the loops is already enabled, it is disabled and then both loops are enabled. Enabling more than 16 conference loops may cause system to lock-up.</p> <p>This command initiates card tests, downloads software and can be used in LD 34, LD 38 and LD 46.</p> <p>The DISL and ENLL commands can be used on the even number loop for the TDS/MFS functions. However, this only prevents the loop from being used by software and does not affect the hardware status of the card. The ENLX and DISX commands are recommended.</p> <p>The Conf/TDS card is not enabled automatically when it is inserted.</p>	xct-15
MFS loop	Test and enable MFS loop.	basic-1
STAT loop	<p>Get status of MFS loop. Response is:</p> <ul style="list-style-type: none">• LOOP UNEQ—loop is unequipped• LOOP DSBL—loop is disabled• CHAN yy—number of channels busy• xx DSBL yy BUSY—number of channels disabled & busy• NOT MFS—loop is not an MFS loop	basic-1
TONE loop	Enter input mode to provide MF tone bursts.	basic-1
TONE loop ALL	<p>Provide MF tone bursts for all digits on specified loop (1 to 9, 0, 11 to 15, in that order).</p>	basic-1

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LD 48: Link Diagnostic

The Link Diagnostic program is used to maintain data links used with various special features and auxiliary data links. A maintenance telephone cannot use LD 48.

Automatic Call Distribution Links

When equipped with the Automatic Call Distribution (ACD) feature, the Meridian 1/Meridian SL-1 is supplemented with an Auxiliary Data Store (ADS) minicomputer system. The auxiliary data processor is located external to the Meridian 1/Meridian SL-1 and is connected via a high-speed link and a low-speed link.

The high-speed link is used for transmission of ACD-related messages between the Meridian 1/Meridian SL-1 and the auxiliary processor; the low-speed link is used for transmission of maintenance/error messages between the maintenance TTY (connected to the Meridian 1/Meridian SL-1) and the auxiliary processor.

Note: When enabling a high-speed link (using the command "ENL HSL" or "ENL SDI HIGH" in LD 48), the craftsperson must log out of the TTY to receive a message from the switch which confirms that the high-speed link (HSL) has been enabled.

Each Auxiliary Processor Link (APL) consists of a single Serial Data Interface (SDI) port connected via an interface cable to an interface port on the auxiliary processor.

ACD High speed and low speed link monitor

The ACD monitor diagnoses messages which flow across the link. This tool is useful to someone experienced with message formats and protocols.

APL monitor

The APL monitor is a tool used to diagnose the messages flowing across the link. This is only useful for someone experienced with the message formats and protocols.

Integrated Messaging System Links

The link maintenance capabilities provided for Integrated Messaging System (IMS) and Integrated Voice Messaging System (IVMS) links allow the link to be disabled/enabled and put into the maintenance mode.

The link software/hardware status can also be displayed. The program allows the craftsman to request that the printouts of all packed and/or unpacked messages be sent over a specified APL link.

Using print options (packed/unpacked messages) and observing the patterns of messages sent over the link, the most probable fault location (AUX, Meridian 1/Meridian SL-1 or SDI cable) can be determined.

Command and Status Links (CSL)

The Command and Status Link is an application protocol used for communication between the Meridian 1/Meridian SL-1 CPU and an external Value Added Server such as the Meridian Mail MP. The CSL runs on an Enhanced Serial Data Interface (ESDI) card.

In addition to the tests in LD 48, resident firmware diagnostics for the CSLs and ESDIs can output CSA, ESDA, ESDI error messages.

Multi-purpose Serial Data Link (MSDL)

MSDL provides 4 ports for applications such as ISDN Primary Rate D-channels (DCH) and Application Module Links (AML). With X11 Release 19 and later, the MSDL card supports SDI functions.

The MSDL commands are listed below, where x is the MSDL device number (defined by prompt DNUM in LD 17). These are provided in Link Diagnostic (LD 48) and D-channel Maintenance (LD 96), and I/O Diagnostic (LD 37).

DIS MSDL x (ALL) — Disable MSDL card
 ENL MSDL x (FDL, ALL) — Enable MSDL card
 RST MSDL x — Reset MSDL card
 STAT MSDL (x (FULL)) — Get MSDL status
 SLFT MSDL x — Execute a self-test on MSDL card x

These are provided in Link Diagnostic (LD 48) and D-channel Maintenance (LD 96), and I/O Diagnostic (LD 37) Overlays.

Application Module Link (AML)

An Application Module Link (AML) provides a connection to applications such as Meridian Link. The AML is configured on an Enhanced Serial Data Interface (ESDI) or Multipurpose Serial Data Link (MSDL) card.

In X11 Release 18 and later, CMS and ESDI commands are replaced by the following AML commands:

Old command	New command
ENL ESDI x	ENL AML x LYR2
DIS ESDI x	DIS AML x LYR2
ENL CMS x	ENL AML x LYR7
DIS CMS x	DIS AML x LYR7
CON ESDI x	EST AML x
DSC ESDI x	RLS AML x
ACMS x	AML x ACMS
SLFT ESDI x	SLFT AML x
STAT CMS (x)	STAT AML x
STAT ESDI (x)	STAT AML x
SWCH CMS x	SWCH AML x y

AML/CSL monitor

The AML monitor is a tool used to diagnose the messages flowing across the link. This is only useful for someone experienced with the message formats and protocols.

ISDN BRI monitor

This capability is used to monitor input/output messages to the MISP and SILC/UILC. This is only useful for someone experienced with the message formats and protocols. A password is required for DGB and MON options. The SETM TNx, RSET TNx and RSET ALL commands are also available for digital telephones.

Caution: Use of the SETM MISP loop MON commands may use all system printing registers and cause an initialization.

Single Terminal Access (STA)

Single Terminal Access (STA) is an application available on the MSDL card with X11 Release 19 and later. The STA application reduces the number of physical devices used to administer and maintain the Meridian 1 and its auxiliary processors.

Voice Mailbox Administration (VMBA)

Voice Mailbox Administration (VMBA) is available with X11 Release 19 and Meridian Mail 9. It allows for Integrated Voice Mailbox Administration.

Basic commands

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Basic commands

ACMS x	Automatic set-up for Command and Status link x
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
CON ESDI x	Set up link layer of HDLC protocol
DIS AML x	Disable AML x
DIS AML x AUTO	Disable AUTO recovery on AML x (MSDL only)
DIS AML x LYR2	Disable layer two on AML x
DIS AML x LYR7	Disable layer seven on AML x
DIS AML x MDL	Disable MDL error reporting on AML x (MSDL only)
DIS AML x MON	Disable monitor on AML x (MSDL only)
DIS APL x	Put software AUX link x in maintenance mode
DIS CMS x	Disable Command and Status link x
DIS ESDI x	Disable ESDI x
DIS HSL	Disable the high-speed link
DIS ICP x	Put ICP link x into maintenance mode
DIS ISDI x	Disable hardware AUX link SDI x
DIS MON	Disable the monitor-bit of high-speed link data
DIS MSDL x (ALL)	Disable MSDL device x
DIS MSGI x	Disable the MSGI option
DIS MSGO x	Disable the MSGO option
DIS PACI x	Disable the PACI option
DIS PACO x	Disable the PACO option
DIS PPRT x	Disable packet message print option on link x
DIS PRNT	Disable the print-bit of high-speed link data
DIS SDI HIGH	Disable the SDI port for high-speed link
DIS SDI LOW	Disable the SDI port for low-speed link
DIS STA x	Disable the STA application.
DIS UPRT x	Disable unpacket message print on AUX link x
DSC ESDI x	Disconnect the link
DSIC LSTI x	Disable printing of lost input messages on link x
DSIC LSTO x	Disable printing of lost output messages on link x
DSIC MSGI x	Disable printing of input messages on link x at input queue level
DSIC MSGO x	Disable printing of output messages on link x at output queue level
DSIC PACI x	Disable printing of input messages on link x at input buffer level
DSIC PACO x	Disable printing of output messages on link x at output buffer level

ENIC LSTI x	Enable printing of lost input messages on link x
ENIC LSTO x	Enable printing of lost output messages on link x
ENIC MSGI x	Enable printing of messages on link x at input queue level
ENIC MSGO x	Enable printing of messages on link x at output queue level
ENIC PACI x	Enable printing of input messages on link x at input buffer level
ENIC PACO x	Enable printing of output messages on link x at output buffer level
ENL AML x	Enable AML x
ENL AML x ACMS	Enable automatic set-up on AML x (ESDI only)
ENL AML x AUTO	Enable AUTO recovery on AML x (MSDL only)
ENL AML x FDL	Force download loadware to the MSDL card and enable AML x
ENL AML x LYR2	Enable layer two on AML x
ENL AML x LYR7	Enable layer seven on AML x
ENL AML x MDL	Enable MDL error reporting on AML x (MSDL only)
ENL AML x MON	Enable monitor on AML x (MSDL only)
EST AML x	Establish layer two on AML x
ENL APL x	Put software AUX link x in non-maintenance mode
ENL CMS x	Enable CSL x
ENL ESDI x	Enable ESDI x
ENL HSL	Enable the high-speed link
ENL ICP x	Enable ICP link x
ENL ISDI x	Enable AUX link SDI x
ENL MON	Print software information at maintenance TTY
ENL MSDL x (ALL, FDL)	Enable MSDL device x
ENL MSGI x	Print incoming messages from link x
ENL MSGO x	Print outgoing messages from link x
ENL PACI x	Print incoming messages from link x
ENL PACO x	Print outgoing messages from link x
ENL PPRT x	Enable packet message print option on link x
ENL PRNT	Connect high-speed link to TTY
ENL SDI HIGH	Enable SDI port for high-speed link
ENL SDI LOW	Enable SDI port for low-speed link
ENL UPRT x	Enable unpacked message print on link x
ENLX MSGI x p	Output incoming priority p messages from link x
ENLX MSGO x p	Output outgoing priority p messages from link x
ENL STA x (FDL)	Enable STA application. The MSDL card must be enabled to implement this command.
ICP ADD xxxx	Set up additional information xxxx to be used in the ICP message

ICP CLR	Clear previous ICP message set up without sending it
ICP DN xxxx	Set up ICP DN xxxx to be used in the ICP message
ICP IPN xx	Set up IPN number xx to be used in the ICP message
ICP LINK xx	Set up ICP link x to be used in the ICP message
ICP RSN x	Set up the intercept transfer reason x to be used in the ICP message
ICP SEND xx yy	Send the defined ICP message number xx, yy times
ICPM	Access ICP maintenance commands
MAP AML (x)	Get physical address and card name of one or all AMLs
MAP STA x	Get information relating to the STA application.
PSWD	Enter password to use ICP maintenance commands
RLS AML x	Release layer two on AML x
RSET ALL	Stop printing all messages on a line card
RSET BRIM	Stop printing of messages on SILC/UILC, MISP or digital line card
RSET IFx 1 PDL2 1	Stop printing SAPI 16 interface messages.
RSET IFx 1 PDNI n	Stop printing network interface messages.
RSET IFx l s c u BCH x	Stop printing B-channel terminal interface messages.
RSET IFx l s c u DCHx	Stop printing D-channel terminal interface messages.
RESET IMSG l s c dsl	Disable monitoring on incoming
RSET MISP loop AMO	Stop MISP printing of audit messages on MISP card
RSET MISP loop DGB	Exit MISP debug
RSET MISP loop MNT	Stop MISP printing of status messages on MISP card
RSET MISP loop MON	Stop printing of input/output messages on MISP card
RSET MPHM	Stop all Meridian Packet Handler message monitoring.
RSET OMSG l s c dsl	Disable monitoring on outgoing
RSET TNx	Stop printing messages on an ISDN BRI line card
RST MSDL x	Reset MSDL device x
SET IMSG l s c dsl MON x	Set monitor on incoming msg
SET OMSG l s c dsl MON x	Set monitor on outgoing msg
SETM BRIM xxxx	Set printing of messages on SILC/UILC, MISP or digital line card
SETM IFx 1 PDL2 1	Set printing of SAPI 16 interface messages
SETM IFx 1 PDNI n	Set printing of network interface messages.
SETM IFx l s c u BCHx	Set printing of B-channel terminal interface messages.
SETM IFx l s c u DCHx	Set printing of D-channel terminal interface messages.
SETM MISP loop AMO	Set printing of audit messages on MISP card
SETM MISP loop DBG	Set debug option on MISP card
SETM MISP loop MNT	Set printing of status messages on MISP card
SETM MISP loop MON	Set printing of input/output messages on MISP card

SETM MPHm xxxx	Set printing of Meridian Packet Handler messages. Where: xxxx = the MPHs to be monitored
SETM TNx l s c u, 31	Set printing messages on a digital line card unit (u) or ISDN BRI line card (31)
SETM TNx l s c u, dsl	Set printing messages on a unit
SLFT AML x	Invoke self-test for AML x
SLFT ESDI x	Invoke ESDI and run self-test
SLFT MSDL x	Invoke self-test for MSDL device x
STAT AML (x)	Get AML status
STAT APL x	Display status of AUX link x
STAT CMS x	Get status of Command and Status link x
STAT CNFG	Get status of link monitor/simulator configuration
STAT CSDI x	Get status of SDI port x
STAT DSP LNK x	Get status of all Displays on link x
STAT ESDI x	Get status of ESDI x
STAT HSL	Get high-speed link status
STAT ICP (x)	Display software status of one or all ICP links
STAT ISDI x	Get status of hardware AUX link SDI x
STAT LSL	Get low-speed link status
STAT MON (x)	Get status of one or all message monitors
STAT MSDL (x [FULL])	Get MSDL status
STAT SDI HIGH	Get status of high-speed link port
STAT SDI LOW	Get status of low-speed link port
STAT STA x	Get status of STA application.
SWCH AML x y	Switch active (x) and standby (y) AML
SWCH CMS x y	Switch active (x) and standby (y) CSL
UPLD AML x TBL x	Upload parameter Table 1 to 4 from AML x (MSDL only)

LD 48

ACD High speed and low speed link commands

The following commands are used to enable, disable, test and check the status of an APL link.

Note: When enabling a high-speed link (using the command “ENL HSL” or “ENL SDI HIGH” in LD 48), the craftsperson must log out of the TTY to receive a message from the switch which confirms that the high-speed link (HSL) has been enabled.

DIS HSL	Disable the high-speed link
DIS SDI HIGH	Disable the SDI port for high-speed link
DIS SDI LOW	Disable the SDI port for low-speed link
ENL HSL	Enable the high-speed link
ENL SDI HIGH	Enable SDI port for high-speed link
ENL SDI LOW	Enable SDI port for low-speed link
STAT HSL	Get high-speed link status
STAT LSL	Get low-speed link status
STAT SDI HIGH	Get status of high-speed link port
STAT SDI LOW	Get status of low-speed link port

ACD High speed and low speed link monitor commands

The monitor is a tool used to diagnose the messages flowing across the link. This is only useful for someone experienced with the message formats and protocols.

DIS MON	Disable the monitor-bit of high-speed link data
DIS PRNT	Disable the print-bit of high-speed link data
ENL MON	Print software information at maintenance TTY
ENL PRNT	Connect high-speed link to TTY
STAT MON (x)	Get status of one or all message monitors

AML commands

The AML commands are listed below, where **x** is the AML logical device number (defined by prompt ADAN in LD 17). Some of these commands only apply to AMLs on an MSDL card.

DIS AML x	Disable AML x
DIS AML x AUTO	Disable AUTO recovery on AML x (MSDL only)
DIS AML x LYR2	Disable layer two on AML x
DIS AML x LYR7	Disable layer seven on AML x
DIS AML x MDL	Disable MDL error reporting on AML x (MSDL only)
DIS AML x MON	Disable monitor on AML x (MSDL only)
ENL AML x	Enable AML x
ENL AML x ACMS	Enable automatic set-up on AML x (ESDI only)
ENL AML x AUTO	Enable AUTO recovery on AML x (MSDL only)
ENL AML x FDL	Force download loadware to the MSDL card and enable AML x
ENL AML x LYR2	Enable layer two on AML x
ENL AML x LYR7	Enable layer seven on AML x
ENL AML x MDL	Enable MDL error reporting on AML x (MSDL only)
ENL AML x MON	Enable monitor on AML x (MSDL only)
EST AML x	Establish layer two on AML x
MAP AML (x)	Get physical address and card name of one or all AMLs
RLS AML x	Release layer two on AML x
SLFT AML x	Invoke self-test for AML x
STAT AML (x)	Get AML status
SWCH AML x y	Switch active (x) and standby (y) AML
UPLD AML x TBL x	Upload parameter table 1 to 4 from AML x (MSDL only)

AML over Ethernet (ELAN) commands

DIS ELAN	Disable ELAN (server task)
DIS ELAN x	Disable ELAN link number x (client task)
ENL ELAN	Enable ELAN (server task)
STAT ELAN	Check status of all configured ELANs
STAT ELAN	Check status of ELAN xx

AML/CSL monitor commands

The AML monitor is a tool used to diagnose the messages flowing across the link. This is only useful for someone experienced with the message formats and protocols. These commands apply to CSLs or AMLs on ESDI cards and AMLs on MSDL cards.

DIS MSGI x	Disable output of incoming layer seven messages on AML x
DIS MSGO x	Disable output of outgoing layer seven messages on AML x
DIS PACI x	Disable output of incoming layer two messages on AML x
DIS PACO x	Disable output of outgoing layer two messages on AML x
DISM MSGI <link#><msg1><msg2>...	Disable message input/output monitoring excluding those specified incoming messages
DISM MSGO <link#><msg1><msg2>...	Disable message input/output monitoring excluding those specified outgoing messages
DSIM MSGI <link#>	Disable inclusive incoming message monitoring
DSIM MSGO <link#>	Disable inclusive outgoing message monitoring
DSIP MSGI <link#><pri><pri>...	Disable monitoring of inclusive priorities on incoming messages
DSIP MSGO <link#><pri><pri>...	Disable monitoring of inclusive priorities on outgoing messages
DSIT MSGI <link#><l><s><c><u>	Disable inclusive TN incoming message monitoring
DSIT MSGO <link#><l><s><c><u>	Disable inclusive TN outgoing message monitoring
DSXP MSGI <link#><pri><pri>...	Disable monitoring of exclusive priorities on incoming messages
DSXP MSGO <link#><pri><pri>...	Disable monitoring of exclusive priorities on outgoing messages
DSXT MSGI <link#><l><s><c><u>	Disable exclusive TN incoming message monitoring
DSXT MSGO <link#><l><s><c><u>	Disable exclusive TN outgoing message monitoring
ENIM MSGI <link#><msg1><msg2>...	Enable inclusive input/output message monitoring of only those specified incoming messages
ENIM MSGO <link#><msg1><msg2>...	Enable inclusive input/output message monitoring of only those specified outgoing messages
ENIP MSGI <link#><pri><pri>...	Enable inclusive input/output monitoring of incoming messages with specified priorities

ENIP MSGO <link#><pri><pri>...	Enable inclusive input/output monitoring of outgoing messages with specified priorities
ENIT MSGI <link#>< ><s><c><u>	Enable inclusive input/output monitoring of incoming messages with specified TN
ENIT MSGO <link#>< ><s><c><u>	Enable inclusive input/output monitoring of outgoing messages with specified TN
ENL MSGI x	Enable output of incoming layer seven messages on AML x
ENL MSGO x	Enable output of outgoing layer seven messages on AML x
ENL PACI x	Enable output of incoming layer two messages on AML x
ENL PACO x	Enable output of incoming layer two messages on AML x
ENXM MSGI <link#><msg1><msg2>...	Enable message input/output monitoring excluding those specified incoming messages
ENXM MSGO <link#><msg1><msg2>...	Enable message input/output monitoring excluding those specified outgoing messages
ENXP MSGI <link#><pri><pri>...	Enable input/output incoming message monitoring excluding messages with specified priorities
ENXP MSGO <link#><pri><pri>...	Enable input/output outgoing message monitoring excluding messages with specified priorities
ENXT MSGI <link#>< ><s><c><u>	Enable input/output message monitoring excluding incoming messages with specified TN
ENXT MSGO <link#>< ><s><c><u>	Enable input/output message monitoring excluding outgoing messages with specified TN
FLSH	Disable monitor and flash buffers
STAT MON (x)	Get status of one or all message monitors

Auxiliary Processor Link (APL) commands

The following commands are used to enable, disable, test and check the status of an APL link.

DIS APL x	Put software AUX link x in maintenance mode
DIS ISDI x	Disable hardware AUX link SDI x
ENL APL x	Put software AUX link x in non-maintenance mode
ENL ISDI x	Enable AUX link SDI x
STAT APL x	Display status of AUX link x
STAT DSP LNK x	Get status of all Displays on link x
STAT ISDI x	Get status of hardware AUX link SDI x

APL monitor commands

The APL monitor is a tool used to diagnose the messages flowing across the link. This is only useful for someone experienced with the message formats and protocols.

DIS PPRT x	Disable packet message print option on link x
DIS UPRT x	Disable unpacked message print on AUX link x
ENL PPRT x	Enable packet message print option on link x
ENL UPRT x	Enable unpacked message print on link x
ENLX MSGI x p	Output incoming priority p messages from link x
ENLX MSGO x p	Output outgoing priority p messages from link x
STAT CNFG	Get status of link monitor/simulator configuration
STAT CSDI x	Get status of SDI port x
STAT DSP LNK x	Get status of all Displays on link x

CSL commands (X11 Release 17 and earlier)

The following commands are used to enable, disable, test and check the status of Command and Status links. Note: Use AML commands in X11 Release 18 and later.

ACMS x	Automatic set-up for Command and Status link x
CON ESDI x	Set up link layer of HDLC protocol
DIS CMS x	Disable Command and Status link x
DIS ESDI x	Disable ESDI x
DSC ESDI x	Disconnect the link
ENL CMS x	Enable CSL x
ENL ESDI x	Enable ESDI x
SLFT ESDI x	Invoke ESDI and run self-test
STAT CMS x	Get status of Command and Status link
STAT ESDI x	Get status of ESDI x
SWCH CMS x y	Switch active (x) and standby (y) CSL

Intercept Computer Update (ICU) commands

DIS ICP x	Put ICP link x into maintenance mode
DSIC LSTI x	Disable printing of lost input messages on link x
DSIC LSTO x	Disable printing of lost output messages on link x
DSIC MSGI x	Disable printing of input messages on link x at input queue level
DSIC MSGO x	Disable printing of output messages on link x at output queue level
DSIC PACI x	Disable printing of input messages on link x at input buffer level
DSIC PACO x	Disable printing of output messages on link x at output buffer level
ENIC LSTI x	Enable printing of lost input messages on link x
ENIC LSTO x	Enable printing of lost output messages on link x
ENIC MSGI x	Enable printing of messages on link x at input queue level
ENIC MSGO x	Enable printing of messages on link x at output queue level
ENIC PACI x	Enable printing of input messages on link x at input buffer level
ENIC PACO x	Enable printing of output messages on link x at output buffer level
ENL ICP x	Enable ICP link x
ICP LINK xx	Set up ICP link x to be used in the ICP message
ICP DN xxxx	Set up ICP DN xxxx to be used in the ICP message
ICP IPN xx	Set up IPN number xx to be used in the ICP message
ICP RSN x	Set up the intercept transfer reason x to be used in the ICP message
ICP ADD xxxx	Set up additional information xxxx to be used in the ICP message
ICP CLR	Clear previous ICP message set up without sending it
ICP SEND xx yy	Send the defined ICP message number xx, yy times
ICPM	Access ICP maintenance commands
PSWD	Enter password to use ICP maintenance commands
STAT ICP (x)	Display software status of one or all ICP links

ISDN BRI monitor commands

These commands are used to monitor input/output messages to the MISP, and SILC/UILC. This is only useful for someone experienced with the message formats and protocols. A password is required for DGB and MON options. The SETM TNx, RSET TNx and RSET ALL commands are also available for digital telephones.

Caution: Use of the SETM MISP loop MON commands may use all system printing registers and cause an initialization.

RSET ALL	Reset (turn off) printing of messages for all terminal numbers associated with TN0-TN6.
RSET BRIM	Stop printing of messages on SILC/UILC, MISP or digital line card.
RSET MISP x AMO	Stop printing of audit messages on MISP specified.
RSET MISP x DGB	Exit MISP debug.
RSET MISP x MNT	Stop printing status messages on MISP specified.
RSET MISP x MON	Stop printing input/output messages on MISP specified.
RSET TNx	Stop printing of messages for terminal number associated with TNx. TNx is associated with the terminal number by the SETM TNx command.
SETM BRIM xxxx	Set printing of selected message types for MISP, SILC/UILC or digital line cards.
SETM MISP x AMO	Set printing of audit messages on MISP specified. The SETM TNx command must have been issued before issuing this command.
SETM MISP x DBG	Set debug option for the MISP specified. DISABLE MISP prior to issuing this command, re-enable MISP after command issued.
SETM MISP x MNT	Set printing of maintenance messages for the MISP specified.
SETM MISP x MON	Set printing of input/output messages for the MISP specified.
SETM TNx s c u, dsl	Set printing messages on a unit
SETM TNx s c u, 31	Set printing messages on a digital line card unit (u) or ISDN BRI line card (31)
SETM TNx y	Set printing of messages for specified digital line card unit or ISDN BRI line card.

Multipurpose Serial Data Link (MSDL) commands

The MSDL commands are listed below, **x** is the MSDL device number (defined by prompt DNUM in LD 17). These commands are also provided in Input/Output Diagnostic (LD 37) and D-channel Diagnostic (LD 96).

DIS MSDL x (ALL)	Disable MSDL device x
ENL MSDL x (ALL, FDL)	Enable MSDL device x
RST MSDL x	Reset MSDL device x
SLFT MSDL x	Invoke self-test for MSDL device x
STAT MSDL (x [FULL])	Get MSDL status

Single Terminal Access (STA) commands

Single Terminal Access (STA) is an application available on the MSDL card with X11 Release 19 and later. The STA application reduces the number of physical devices used to administer and maintain the Meridian 1 and its auxiliary processors. Refer to the X11 *system management applications* NTP for complete details.

DIS STA x	Disable the STA application
ENL STA x (FDL)	Enable STA application
MAP STA x	Get information relating to the STA application
STAT STA x	Get status of STA application

Voice Mailbox Administration (VMBA) commands

Voice Mailbox Administration (VMBA) is available with X11 Release 19 and Meridian Mail 9. It allows for Integrated Voice Mailbox Administration. Refer to the *X11 features and services* NTP for complete details.

DIS VMBA <vsid>	Disable the Voice Mailbox Administration application
DIS VMBA <vsid> AUDT	Disable the mailbox database audit
DIS VMBA <vsid> UPLD	Disable the mailbox database upload
ENL VMBA <vsid>	Enable the Voice Mailbox Administration application
ENL VMBA <vsid> AUDT	Enable the mailbox database audit
ENL VMBA <vsid> UPLD	Enable the mailbox database upload
STAT VMBA <vsid>	Get the status for the Voice Mailbox Administration application
STAT VMBA <vsid> AUDT	Get the status for the Voice Mailbox database audit
STAT VMBA <vsid> UPLD	Get the status for the Voice Mailbox database upload

Alphabetical list of commands

Command	Description	Pack/Rel
ACMS x	<p>Automatic set-up for Command and Status link x. ACMS is a background process.</p> <p>The given CSL must have been previously disabled. This command is equivalent to using the ENL ESDI x, CON ESDI x and ENL CMS x sequence of commands to set up a Command and Status link or Meridian link.</p> <p>If the first attempt to bring up the CSL fails, ACMS will automatically try again to set up the link. If set-up failure continues, an appropriate error code is generated periodically.</p> <p>Use ENL AML x ACMS command in X11 Release 18 and later.</p>	csl-8
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	basic-1
CON ESDI x	<p>Set up link layer of HDLC protocol. This command is only applicable for a synchronous port.</p> <p>This command is valid only if the ESDI is enabled. If successful, the corresponding ESDI port will be in the CONNECTED state. If the port is used for a CSL application, the command ENL CMS x must be entered before the CSL is operational.</p> <p>Use EST AML x command in X11 Release 18 and later.</p>	csl-8
DIS AML x	<p>Disable AML x.</p> <p>Whenever the third parameter (LYR2, LYR7, etc.) is not typed, the overlay defaults the third parameter of the DIS command to LYR2. Therefore, this command is equivalent to DIS AML x LYR2. Refer to DIS AML x LYR2 command definition, for more information.</p>	msdl-18
DIS AML x AUTO	Disable AUTO recovery on AML x (MSDL only). This command is not available for an ESDI AML.	msdl-18

DIS AML x LYR2	<p>Disable layer two on AML x.</p> <p>MSDL Requirement: The MSDL card must be enabled. The AML link state can be any state other than the disabled state, and should not be in the process of self-test. Example: ENL MSDL x followed by ENL AML x LYR2 must have been executed at an earlier time.</p> <p>MSDL Action: The AML link state is changed to the disable state. The MSDL port on which the AML is configured is disabled.</p> <p>ESDI: The ESDI port is disabled. The port must be idle.</p>	msdl-18
DIS AML x LYR7	<p>Disable layer seven on AML x.</p> <p>The MSDL or ESDI card must be enabled. The AML layer two must be enabled and established, and AML layer seven must also be enabled.</p> <p>Example: ENL MSDL x followed by ENL AML x LYR2 followed by EST AML x followed by ENL AML x LYR7 must have been executed at an earlier time.</p> <p>Action: A request to disable the AML layer seven is issued. SL-1 will stop sending polling messages to the far-end.</p>	msdl-18
DIS AML x MDL	<p>Disable MDL error reporting on AML x (MSDL only).</p> <p>MSDL Requirement: The MSDL card must be enabled. The AML layer two must be enabled.</p> <p>Example: ENL MSDL x followed by ENL AML x LYR2 must have been executed at an earlier time.</p> <p>MSDL Action: The MSDL AML loadware command to disable the debug monitor is sent to the MSDL card.</p> <p>This command is not available for ESDI AML.</p>	msdl-18
DIS AML x MON	<p>Disable monitor on AML x (MSDL only).</p> <p>MSDL Requirement: The MSDL card must be enabled. The AML layer two must be enabled.</p> <p>Example: ENL MSDL x followed by ENL AML x LYR2 must have been executed at an earlier time.</p> <p>MSDL Action: The MSDL AML loadware command to disable the debug monitor is sent to the MSDL card.</p> <p>This command is not available for ESDI AML.</p>	msdl-18
DIS APL x	Put software AUX link x in maintenance mode.	apl-1

DIS CMS x	<p>Disable Command and Status link x.</p> <p>This command does not disable the physical or link layer (HDLC protocol) of the CSL. i.e., the corresponding ESDI is not disabled or disconnected. Warning messages will appear if an attempt is made to disable the active CSL but the link can be disabled if desired.</p> <p>Use DIS AML x LYR7 command in X11 Release 18 and later.</p>	cs1-8
DIS ELAN	Disable the ELAN (server task)	nxcc-22
DIS ELAN x	<p>Disable ELAN link number x (client task)</p> <p>If the application ELAN client task cannot be established from the Meridian 1, the Meridian 1 can disable the client task with this command.</p>	nxcc-22
DIS ESDI x	<p>Disable ESDI x.</p> <p>If the port is used for CSL purposes, the link layer is disconnected and the ESDI will NOT respond to far end SABM (HDLC protocol). Also, ESDI can no longer interrupt the SL-1. A warning message will appear if an attempt is made to disable the active CSL, though it can be disabled, if desired.</p> <p>You cannot disable the active TTY port with this command. Use DIS AML x LYR2 command in X11 Release 18 and later.</p>	cs1-8
DIS HSL	Disable the high-speed link.	lnk-2
DIS IALM <vsid>	Disable the integrated alarms application on the specified VAS. A VAS011 message is printed indicating the application has been disabled.	ialm-21
DIS ICP x	Put ICP link x into maintenance mode.	icp-5
DIS ISDI x	Disable hardware AUX link SDI x.	apl-1
DIS MON	Disable the monitor-bit of high-speed link data.	apl-1

DIS MSDL x (ALL)

msdl-18

Disable MSDL device.

When entered without the optional parameter, the disable MSDL command attempts to disable the MSDL card. Disabling the card via this command is permitted from either the Enabled (ENBL) state or the System Disabled (SYS DSBL) state.

When attempted on an MSDL that does not have any ports enabled, this command will succeed. The only exception to this is when the disable card message needs to be sent to the card, and there is no buffer currently available for building the message (MSDL015 is output to the TTY). In this unusual situation, attempting the command again will most likely result in success.

Application Overlays are not erased when the MSDL is disabled.

If there are any ports that are still running in the MSDL card, the 'ALL' option must be used to force disable the active ports. As an alternative to this command, the craftsperson can use the commands provided by the applications to disable the ports (D-channels or AML) individually, and then use the 'DIS MSDL x' command.

The command 'DIS MSDL x ALL' is not allowed if the active TTY (the terminal from which the command was entered) is supported on the MSDL card in question.

Software disable the logical channel prior to disabling the physical DNUM port.

DIS MSGI x	Disable printing of messages on link x at input queue level. Disable output of incoming layer seven messages on AML x.	csi-8
DIS MSGO x	Disable printing of messages on link x at output queue level. Disable output of outgoing layer seven messages on AML x.	csi-8
DIS PACI x	Disable printing of input messages on link x at input buffer level. (disable output of incoming layer two messages on AML x)	csi-8
DIS PACO x	Disable printing of output messages on link x at output buffer level. (disable output of outgoing layer two messages on AML x)	csi-8

DIS PPRT x	Disable packet message print option on link x.	apl-1
DIS PRNT	Disable the print-bit of high-speed link data.	apl-1
DIS SDI HIGH	Disable the SDI port for high-speed link.	Ink-2
DIS SDI LOW	Disable the SDI port for low-speed link.	Ink-2
DIS STA x	<p>Disable the STA application.</p> <p>This command disables the application, the administration port, and any other additional ports. The associated ports must be disabled before using this command. x = the logical ID number identifying the STA application.</p>	sta-19
DIS UPRT x	Disable unpacket message print on AUX link x.	apl-1
DIS VMBA <vsid>	<p>Disable the Voice Mailbox Administration application. This command is used to disable the Voice Mailbox Application. Enter the command in the following format:</p> <ul style="list-style-type: none"> DIS VMBA <vsid> <NNNN> <p>Where:</p> <ul style="list-style-type: none"> vsid = The VAS ID number associated with VMBA. NNNN = AUDT or UPLD for the database audit or upload. <p>AUDT and UPLD are optional entries. The VAS ID must be entered.</p> <p>The Voice Mailbox audit and upload functions are aborted when the application is disabled. Be sure to get the status of those functions before disabling the application.</p>	vmba-19
DIS VMBA <vsid> AUDT	Disable the mailbox database audit. This command aborts the audit function whether it was invoked manually or automatically.	vmba-19
DIS VMBA <vsid> UPLD	Disable the mailbox database upload. This command aborts the audit function whether it was invoked manually or automatically.	vmba-19

DISM MSGI <link#><msg1><msg2>...	Disable message input/output monitoring excluding those specified incoming messages	nxcc-22
DISM MSGO <link#><msg1><msg2>...	Disable message input/output monitoring excluding those specified outgoing messages	nxcc-22
DSC ESDI x	<p>Disconnect the link.</p> <p>This command is only applicable when the ESDI port is in CONNECTED state. If the command is entered successfully, ESDI x is in enabled state.</p> <p>If this command is entered while the CSL is active, a warning message is generated. Disabling while in this state disables the CMS and ESDI.</p> <p>Use RLS AML x command in X11 Release 18 and later.</p>	csl-8
DSIC LSTI x	Disable printing of lost input messages on link x.	icp-5
DSIC LSTO x	Disable printing of lost output messages on link x.	icp-5
DSIC MSGI x	Disable printing of input messages on link x at input queue level.	icp-5
DSIC MSGO x	Disable printing of output messages on link x at output queue level.	icp-5
DSIC PACI x	Disable printing of input messages on link x at input buffer level.	icp-5
DSIC PACO x	Disable printing of output messages on link x at output buffer level.	icp-5
DSIM MSGI <link#>	Disable inclusive incoming message monitoring	nxcc-22
DSIM MSGO <link#>	Disable inclusive outgoing message monitoring	nxcc-22
DSIP MSGI <link#><pri><pri>...	Disable monitoring of inclusive priorities on incoming messages	nxcc-22

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DSIP MSGO <link#><pri><pri>...	nxcc-22
Disable monitoring of inclusive priorities on outgoing messages	
DSIT MSGI <link#><l><s><c><u>	nxcc-22
Disable inclusive TN incoming message monitoring	
DSIT MSGO <link#><l><s><c><u>	nxcc-22
Disable inclusive TN outgoing message monitoring	
DSXP MSGI <link#><pri><pri>...	nxcc-22
Disable monitoring of exclusive priorities on incoming messages	
DSXP MSGO <link#><pri><pri>...	nxcc-22
Disable monitoring of exclusive priorities on outgoing messages	
DSXT MSGI <link#><l><s><c><u>	nxcc-22
Disable exclusive TN incoming message monitoring	
DSXT MSGO <link#><l><s><c><u>	nxcc-22
Disable exclusive TN outgoing message monitoring	
ENIC LSTI x	icp-5
Enable printing of lost input messages on link x.	
ENIC LSTO x	icp-5
Enable printing of lost output messages on link x.	
ENIC MSGI x	icp-5
Enable printing of messages on link x at input queue level.	
ENIC MSGO x	icp-5
Enable printing of messages on link x at output queue level.	
ENIC PACI x	icp-5
Enable printing of input messages on link x at input buffer level.	
ENIC PACO x	icp-5
Enable printing of output messages on link x at output buffer level.	
ENIM MSGI <link#><msg1><msg2>...	nxcc-22
Enable inclusive input/output message monitoring of only those specified incoming messages	

ENIM MSGO <link#><msg1><msg2>...	nxcc-22
Enable inclusive input/output message monitoring of only those specified outgoing messages	
ENIP MSGI <link#><pri><pri>...	nxcc-22
Enable inclusive input/output monitoring of incoming messages with specified priorities	
ENIP MSGO <link#><pri><pri>...	nxcc-22
Enable inclusive input/output monitoring of outgoing messages with specified priorities	
ENIT MSGI <link#><l><s><c><u>	nxcc-22
Enable inclusive input/output monitoring of incoming messages with specified TN	
ENIT MSGO <link#><l><s><c><u>	nxcc-22
Enable inclusive input/output monitoring of outgoing messages with specified TN	
ENL AML x	esdi/ msdl-18
Enable AML x.	
For MSDL: If AUTO recovery is off, then this command is the same as the ENL AML x LYR2 command. If AUTO recovery is on, an attempt is made to establish the link (layer two) and the application (layer seven).	
For ESDI: This is the same as the ENL AML x LYR2 command.	
ENL AML x ACMS	esdi-18
Enable automatic set-up on AML x (ESDI only). This command is valid only for ESDI AML and is not available on the MSDL AML. It is equivalent to ACMS x command.	
ENL AML x AUTO	msdl-18
Enable AUTO recovery on AML x (MSDL only). This command is not available for ESDI AML links.	

ENL AML x FDL	<p>Force download loadware to the MSDL card and enable AML x.</p> <p>MSDL Requirement: The MSDL card must be enabled. The AML link state must be in the disable state. All other MSDL AML links configured on the same MSDL card must be in the disable state. Example: ENL MSDL x must have been executed at an earlier time.</p> <p>MSDL Action: The MSDL AML loadware is downloaded to the MSDL card. While download is in progress a series of dots are output. Once the command is executed successfully the ENL AML x LYR2 command is executed automatically.</p>	msdl-18
ENL AML x LYR2	<p>Enable layer two on AML x.</p> <p>MSDL Requirement: The MSDL card must be enabled. The AML link state must be in the disable state. Example: ENL MSDL x must have been executed at an earlier time.</p> <p>MSDL Action: The AML link state is changed to the release state. The MSDL port on which the AML is configured is enabled. If the ENL AML x command is executed successfully, and MSDL AML auto recovery is in the enable state, then the EST AML x is issued automatically.</p> <p>ESDI: The ESDI port is enabled. The ESDI card must first be disabled.</p>	msdl-18
ENL AML x LYR7	<p>Enable layer seven on AML x.</p> <p>MSDL Requirement: The MSDL card must be enabled. The AML link should not be in the simulation mode. The AML layer two must be enabled and established, and AML layer seven must be disabled.</p> <p>Example: ENL MSDL x followed by ENL AML x LYR2 followed by EST AML x must have been executed at an earlier time.</p> <p>MSDL Action: A request to enable the AML layer seven is issued. Polling messages are sent to the far end.</p> <p>ESDI: Layer seven is enabled for the ESDI AML. The ENL AML x (LYR2) command must be completed successfully first.</p>	msdl-18

ENL AML x MDL	<p>Enable MDL error reporting on AML x (MSDL only).</p> <p>MSDL Requirement: The MSDL card must be enabled. The AML layer two must be enabled.</p> <p>Example: ENL MSDL x followed by ENL AML x LYR2 must have been executed at an earlier time.</p> <p>MSDL Action: The MSDL AML loadware command to enable the MDL error reporting is sent to the MSDL card.</p> <p>This command is not available for ESDI AML links.</p>	msdl-18
ENL AML x MON	<p>Enable monitor on AML x (MSDL only).</p> <p>MSDL Requirement: The MSDL card must be enabled. The AML layer two must be enabled.</p> <p>Example: ENL MSDL x followed by ENL AML x LYR2 must have been executed at an earlier time.</p> <p>MSDL Action: The MSDL AML loadware command to enable the debug monitor is sent to the MSDL card</p> <p>This command is not available for ESDI AML links.</p>	msdl-18
ENL APL x	Put software AUX link x in non-maintenance mode.	apl-1
ENL CMS x	<p>Enable CSL x.</p> <p>This does not automatically enable the physical layer (HDLC protocol) of the CSL, i.e., the corresponding components (ESDI, Digital Link Interface, ASIM/Data Line Card) have to be enabled before this command can be entered. The command is valid only when the corresponding ESDI is in the CONNECTED state (i.e., the HDLC link layer is up).</p> <p>This command will trigger a polling message to be sent and if the correct response is returned, a confirmation message will be printed and a polling message sent automatically every 5 seconds. If there is no response within 5 seconds, an error message will be printed and no more polling messages will be sent. (48 messages are sent at initial set-up)</p> <p>Use ENL AML x LYR7 command in X11 Release 18 and later.</p>	csi-8
ENL ELAN	<p>Enable ELAN server task</p> <p>When the application establishes connection to a Meridian 1 via this ELAN, a client process will be spawned for this application. The APP_IP_ID (Port ID and IP address) of each connection will be passed into the Meridian 1.</p>	nxcc-22

ENL ESDI x	<p>Enable ESDI x.</p> <p>ESDI hardware tests will be performed and parameters will be downloaded to the ESDI port. If the command is successful, the ESDI port will be in the ENABLED state.</p> <p>If the ESDI is used for a CSL application, the commands CON ESDI x and ENL CSL x have to be entered before CSL is operational.</p> <p>Use ENL AML x LYR2 command in X11 Release 18 and later.</p>	cs1 - 8
ENL HSL	<p>Enable the high-speed link.</p> <p>When enabling a high-speed link, the craftsperson must log out of the TTY to receive a message from the switch which confirms that the high-speed link (HSL) has been enabled.</p>	lnk-2
ENL IALM <vsid>	<p>Enable the integrated alarms application on the specified VAS. A VAS011 message is printed if the application is successfully enabled and a VAS012 if it is not.</p>	ialm-21
ENL ICP x	<p>Enable ICP link x.</p>	icp-5
ENL ISDI x	<p>Enable AUX link SDI x.</p>	apl-1
ENL MON	<p>Print software information at maintenance TTY.</p> <p>This command causes software information being sent to the auxiliary processor to be printed at the TTY. This information would include counts of Cumulative Negative Acknowledgments (NAKs), time-outs and many other control characteristics of the link.</p> <p>Use this command only when the ACD is handling light traffic. Otherwise, the TTY will be overloaded from the high volume of messages.</p>	apl-1

ENL MSDL x (FDL, ALL)

msdl-18

Enable MSDL card.

When entered without any of the optional parameters, the enable MSDL command attempts to enable the MSDL card. Enabling the card via this command is only permitted if the card is currently in the Manually Disabled (MAN DSBL) state.

The enable card succeeds if:

1. the card is resident in the shelf
2. it has passed all the self-tests
3. the MSDL base software has been downloaded and is responding

If the MSDL base software and any configured application software has not been downloaded, or if the version of the software on the card is different from the version on the system disk, software download occurs. While download is in progress, a series of dots (".") are output.

If the FDL (forced download) option is entered, the MSDL base software and all the configured applications will be downloaded regardless if the application already exists on the card. Following the download, the card will be enabled.

If the ALL option is entered, the card will be enabled (provided the three conditions mentioned above are met), all the applications will be downloaded if necessary and then an attempt will be made to enable all the links/ports configured on the card.

Additionally, the enable command with the ALL option can be entered when the card is already in the enabled state. This allows you to enable any disabled links/ports through one command. It is not possible to use both the ALL and the FDL options in the same command.

ENL MSGI x

Print incoming messages from link x. Enable output of incoming layer seven messages on AML x.

csl-8

This command allows printing of all incoming message received over link x on the maintenance output device. The SSD signaling messages and the program input are not printed. This is typically used to check the validity of incoming messages for the different queues.

ENL MSGO x	<p>Print outgoing messages from link x. Enable output of outgoing layer seven messages on AML x.</p> <p>This command allows printing for all outgoing messages over link x on the maintenance output device. This is typically used to check the validity of outgoing messages sent from the application layer to the output queue.</p>	cs1-8
ENL PACI x	<p>Print incoming ESDI messages from link x. Enable output of incoming layer two messages on AML x.</p> <p>When enabled, all incoming messages received on link x to the ESDI are printed on the maintenance TTY, including SSD signaling messages. Typically this is used to check the correctness of the incoming messages as received from the ESDI in the data block format.</p>	cs1-8
ENL PACO x	<p>Print outgoing ESDI messages from link x. Enable output of incoming layer two messages on AML x.</p> <p>When enabled, all outgoing messages are sent through link x to the ESDI and are printed on the maintenance TTY. The message will be printed in the data block format required by the ESDI.</p>	cs1-8
ENL PPRT x	<p>Enable packet message print option on link x. Printouts can be up to 7 lines in length and are of the form:</p> <ul style="list-style-type: none"> • APLO xxx y xxx. . . x • APLI xxx y xxx. . . x 	apl-1

Where:

- APLO = the message is output from the Meridian 1
- APLI = the message is input to Meridian 1 from AUX
- xxx = number of the APL link.
- y = number from 0 to 6 indicating the printout line number of the message. This field is not used for ACK and NAK messages.

ENL PRNT	<p>Connect high-speed link to TTY.</p> <p>Disconnects the high-speed link from the AUX and connects it instead to an RS-232-C compatible TTY device. This disrupts communication between the Meridian 1 and the auxiliary processor. It enables ACD related messages (which would normally be sent to the auxiliary processor) to be printed at the TTY connected to the high-speed link.</p> <p>Normal communications between the Meridian 1 and the auxiliary processor will not continue if the ENL PRNT command is inputted while the Meridian 1 and auxiliary processor are still connected. A different message format is used between the Meridian 1 and the auxiliary processor. This condition will cause the HSL to go down because the auxiliary processor cannot interpret this other message format.</p>	apl-1
ENL SDI HIGH	<p>Enable SDI port for high-speed link.</p> <p>When enabling a high-speed link, the craftsperson must log out of the TTY to receive a message from the switch which confirms that the high-speed link (HSL) has been enabled.</p>	lnk-2
ENL SDI LOW	<p>Enable SDI port for low-speed link.</p>	lnk-2
ENL STA x (FDL)	<p>Enable STA application. The MSDL card must be enabled to implement this command, where:</p> <ul style="list-style-type: none"> • x = the logical ID number identifying the STA application. • FDL = force download the application. If not invoked, the application is downloaded only when needed 	sta-19
ENL UPRT x	<p>Enable unpacked message print on link x. Printouts are of the form: APLMxxx aa b c zzzz. . . z</p> <p>Where:</p> <ul style="list-style-type: none"> • APLMxxx = indicates unpacked message over link xxx • aa = indicates the message length • b = indicates the application type • c = indicates the message type • zzz = these fields are the message body, depending on the application and message type 	apl-1

ENL VMBA <vsid>

vmba-19

Enable the Voice Mailbox Administration application. Enter the command in the following format:

ENL VMBA <vsid> <NNNN> ALL/xxxx

Where:

- vsid = The VAS ID number associated with VMBA.
- NNNN = AUDT or UPLD for the mailbox database audit or upload functions.
- ALL/xxxx = Enable NNNN for ALLDNs with Voice Mailboxes, or a specific DN (xxxx).

NNNN and ALL/xxxx are optional entries. The VAS ID must be entered to initiate this command.

ENL VMBA <vsid> AUDT

vmba-19

Enable the mailbox database audit. Enter the command in the following format:

ENL VMBA <vsid> AUDT ALL/xxxx

The audit can be implemented for a specific Directory. Number by entering the DN following the audit command:

- ENL VMBA <vsid> AUDT xxxx

The upload can also be enabled for all DN's eligible for a Voice Mailbox by entering ALL following the audit command:

- ENL VMBA <vsid> AUDT ALL

ENL VMBA <vsid> UPLD

vmba-19

Enable the mailbox database upload. Enter the command in the following format:

- ENL VMBA <vsid> UPLD ALL/xxxx

The upload can be implemented for a specific Directory. Number by entering the DN following the upload command:

- ENL VMBA <vsid> UPLD xxxx

The audit can also be enabled for all DN's configured with Voice Mailboxes by entering ALL following the upload command:

- ENL VMBA <vsid> UPLD ALL

ENLX MSGI x p	<p>Output incoming priority p messages from link x.</p> <p>When enabled by the user, all incoming messages received on link x are output, excluding the messages with specified priorities, where "p" is the message priority, and where:</p> <ul style="list-style-type: none"> • 1 = the system priority • 2 = signaling priority • 3 = call processing priority • 4 = administration priority 	apl-1
ENLX MSGO x p	<p>Output outgoing priority p messages from link x.</p> <p>When enabled by the user, all outgoing messages sent through link x are output, excluding the messages with specified priorities, where "p" is the message priority, and where:</p> <ul style="list-style-type: none"> • 1 = the system priority • 2 = signaling priority • 3 = call processing priority • 4 = administration priority. 	apl-1
EST AML x	<p>Establish layer two on AML x.</p> <p>The layer two is established for the AML configured on the given MSDL port. The layer two is connected for the AML configured on the ESDI card.</p> <p>MSDL Requirement: The MSDL card must be enabled. The AML layer two must be enabled and released.</p> <p>Example: ENL MSDL x followed by ENL AML x LYR2 must have been executed at an earlier time.</p> <p>MSDL Action: The MSDL AML link state is changed into the established state. If EST AML x executes successfully, and provided that the MSDL AML AUTO recovery is enabled, next the ENL AML x LYR7 is executed automatically.</p> <p>ESDI: Layer two is connected for the ESDI AML. The port must be enabled first.</p>	msdl-18
ENXM MSGI <link#><msg1><msg2>...	<p>Enable message input/output monitoring excluding those specified incoming messages</p>	nxcc-22
ENXM MSGO <link#><msg1><msg2>...	<p>Enable message input/output monitoring excluding those specified outgoing messages</p>	nxcc-22

ENXP MSGI <link#><pri><pri>...	Enable input/output incoming message monitoring excluding messages with specified priorities	nxcc-22
ENXP MSGO <link#><pri><pri>...	Enable input/output outgoing message monitoring excluding messages with specified priorities	nxcc-22
ENXT MSGI <link#>< ><s><c><u>	Enable input/output message monitoring excluding incoming messages with specified TN	nxcc-22
ENXT MSGO <link#>< ><s><c><u>	Enable input/output message monitoring excluding outgoing messages with specified TN	nxcc-22
FLSH	Disable monitor and flash buffers	nxcc-22
ICP ADD xxxx	Set up additional information xxxx to be used in the ICP message. Enter the time (hhmm) and date (mmdd).	icp-5
ICP CLR	Clear previous ICP message set up without sending it.	icp-5
ICP DN xxxx	Set up ICP DN xxxx to be used in the ICP message.	icp-5
ICP IPN xx	Set up IPN number xx to be used in the ICP message.	icp-5
ICP LINK xx	Set up ICP link xx to be used in the ICP message.	icp-5
ICP RSN x	Set up the intercept transfer reason x to be used in the ICP message.	icp-5
ICP SEND xx yy	Send the defined ICP message number xx, yy times. Where: <ul style="list-style-type: none"> xx = number/type of ICP message (50-61 to the ICP link, 00-03 to the ICP module) yy = number of times message is to be sent per time-slice (default = 1, maximum = 4) The message is only cleared by entering the ICP CLR command or by changing the contents of the message.	icp-5

ICPM	<p>Access ICP maintenance commands.</p> <p>Enter this command and the password (prompt PSWD) to use Intercept Computer Update (ICP) maintenance commands.</p>	icp-5
MAP AML (x)	<p>Get physical address and card name of one or all AMLs.</p> <p>This command outputs the card name and physical card address and ports for one or all AMLs. This information is also output with the STAT AML command. For example:</p> <ul style="list-style-type: none"> • MAP AML • AML: 05 ESDI: 04 • AML: 12 MSDL:07 PORT:1 	msdl-18
MAP STA x	<p>Get information relating to the STA application.</p> <p>This command displays the logical, physical, and port allocation information related to the STA application. If the ID number (x) is not specified, the information for all existing STAs is given.</p>	sta-19
PSWD	<p>Enter password to use ICP maintenance commands.</p>	icp-5
RLS AML x	<p>Release layer two on AML x.</p> <p>The layer two is released for the AML link configured on the given MSDL port. The layer two is disconnected for the AML configured on the ESDI card.</p> <p>MSDL Requirement: The MSDL card must be enabled. The AML layer two must be enabled and established. Example: ENL MSDL x followed by ENL AML x LYR2 followed by EST AML x must have been executed at an earlier time.</p> <p>MSDL Action: Prior to the execution of the RLS AML x, if the MSDL AML layer seven is enabled, the DIS AML x LYR7 is automatically executed. The MSDL AML state is changed to the release state.</p> <p>ESDI: The layer two is disconnected for the ESDI AML port. The port must be in the connected and idle state first.</p>	msdl-18
RSET ALL	<p>Stop printing all messages on a line card.</p>	arie/ bri-14
RSET BRIM	<p>Stop printing of messages on SILC/UILC, MISP or digital line card.</p>	bri/ arie-18

RSET IFx 1 PDL2 1	Stop printing SAPI 16 interface messages.	mph-19
RSET IFx 1 PDNI n	Stop printing network interface messages.	mph-19
RSET IFx 1 s c u BCH x	Stop printing B-channel terminal interface messages.	mph-19
RSET IFx 1 s c u DCHx	Stop printing D-channel terminal interface messages.	mph-19
RSET IMSG 1 s c dsl	Disable monitoring on incoming	
RSET MISP x AMO	Stop printing of audit messages on MISP specified. Where: x = loop for non-Option 11 and card for Option 11.	bri-18
RSET MISP x DGB	Exit MISP debug. Where: x = loop for non-Option 11 and card for Option 11.	bri-18
RSET MISP loop MNT	Stop printing of status messages on MISP specified. Where: x = loop for non-Option 11 and card for Option 11.	bri-18
RSET MISP x MON	Stop printing of input/output messages on MISP specified. Where: x = loop for non-Option 11 and card for Option 11.	bri-18
RSET MPHM	Stop all Meridian Packet Handler message monitoring.	mph-19
RSET OMSG 1 s c dsl	Disable monitoring on outgoing	
RSET TNx	Stop printing messages on an ISDN BRI line card. Where: x = 0-6 (TN0-TN6).	bri-18

RST MSDL x Reset MSDL card. msdl-18

This command causes a power-on reset on the MSDL, followed by a series of short self-tests. Resetting the card via this command is only permitted if the card is in the Manually Disabled (MAN DSBL) state.

SET IMSG I s c dsl MON x
Set monitor on incoming msg

SET OMSG I s c dsl MON x
Set monitor on outgoing msg

SETM BRIM xxxx

bri-18

Set printing of messages on SILC/UILC, MISP, or digital line card.

This command is used to select various message types for printing on a given TN (defined by SETM TNx commands). The value of xxxx is a HEX word which determines the message types.

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
				X						X	X	X	X	X	X

Bit 0 = Input SSD message from BRI line cards.

Bit 1 = Output SSD message to BRI line cards.

Bit 2 = Input expedited (high priority) message from BRIL application on MISP.

Bit 3 = Output expedited (high priority) message from BRIL application on MISP.

Bit 4 = Input ring message from BRIL application on MISP.

Bit 5 = Output ring message from BRIL application on MISP.

Bit 11 = Call processing error message.

All other Bits are for future use. Note that the SETM TNx command must have been issued before issuing this command.

Examples:

To print input SSD and expedited messages:

- SETM BRIM 0005 (i.e., 0000000000000101)

To print input and output expedited messages:

- SETM BRIM 000C (i.e., 0000000000001100)

SETM IFx 1 PDL2 1

mph-19

Set printing of SAPI 16 interface messages.

SETM IFx 1 PDNI n

mph-19

Set printing of network interface messages.

SETM IFx 1 s c u BCHx

mph-19

Set printing of B-channel terminal interface messages.

SETM IFx 1 s c u DCHx

mph-19

Set printing of D-channel terminal interface messages.

SETM MISP x AMO

bri-18

Set printing of audit messages on MISP specified.

Where: x = loop for non-Option 11 and card for Option 11.

These messages are sent from the MISP handler to the MISP basecode. This command is used to turn these messages back on once they have been turned off because:

- debug or monitor (MON) mode is enabled
- RSET x AMO command has been issued

SETM MISP x DBG

bri-18

Set debug option on MISP specified. Where: x = loop for non-Option 11 and card for Option 11.

The card must be disabled first. The debug option has the following effect when the MISP is enabled:

- turns off the sanity timer
- stops interface handler audit messages
- no timestamp messages are sent to the MISP card

This command requires a password. The "dot" prompt indicates debug mode is turned on.

SETM MISP x MNT

bri-18

Set printing of status messages on MISP specified.

Where: x = loop for non-Option 11 and card for Option 11.

These messages indicate:

- error indication messages from the MISP
- state of L1 on SILC/UILC and L2/L3 on MISP

This option setting is lost during an initialization.

SETM MISP x MON	bri-18
Set printing of input/output messages on MISP card. Where: x = loop for non-Option 11 and card for Option 11. Both the expedited and ring input/output messages are printed. This command also sets the debug option and requires a password. This command turns on all input/output messages. This may use up all system print registers and may cause system initialization. Therefore use this command with caution. The debug option is turned off by a system initialization. Restarting debug will also restart the input/output monitoring. DISABLE MISP prior to issuing this command, re-enable MISP after command issued.	
SETM MPHx xxxx	mph-19
Set printing of Meridian Packet Handler messages. Where: xxxx = the MPHs to be monitored	
SETM TNx l s c u, 31	arie/ bri-14
Set printing messages on a digital line card unit (u) or ISDN BRI line card (31). This command is used in conjunction with the SETM BRIM command. The value x is a tag number (0-6). For ISDN BRI line cards, you must enter "l s c 31" for the address.	
SETM TNx l s c u, dsl	arie/ bri-14
Set printing messages on a unit. This command is used in conjunction with the SETM BRIM command. The value x is a tag number (0-6).	
SETM TNx y	bri-18
Set printing messages on a digital line card unit or ISDN BRI line card. Where: x = tag number 0-6 (TN0-TN6) y = l s c u (loop, shelf, card, and unit) or l s c dsl (loop, shelf, card, and digital subscriber loop) for non-Option 11 systems and c u (card, and unit) or c dsl (card, and digital subscriber loop) for Option 11 systems. If u = 31 when a S/T (SILC) or U (UILC) Interface Line Card is specified for the y parameter, then messages for that line card are printed. This command must be issued before the SET BRIM command.	

SLFT AML x	<p>Self-test on AML x.</p> <p>This command runs the local loop back test for MSDL AML, and the ESDI self-test for the ESDI AML.</p> <p>MSDL Requirement: The MSDL card must be enabled. The AML layer two must be disabled.</p> <p>Example: ENL MSDL x must have been executed at an earlier time.</p> <p>MSDL Action: The MSDL AML local loop back test is executed and upon completion of the test the MSDL AML port is set to the disable state.</p>	msdl-18
SLFT ESDI x	<p>Invoke ESDI and run self-test.</p> <p>The command is only valid for the port which is in an enabled state and when the other port on the ESDI pack is in the disabled state (tests the whole card). If the self-test passes, OK is output; otherwise, an error message is output.</p> <p>Use SLFT AML x command in X11 Release 18 and later.</p>	csl-8
SLFT MSDL x	<p>Execute a self-test on MSDL card x.</p> <p>This command causes a power-on reset on the MSDL, which will be followed by a complete set of self-tests. This command only executes self-tests if the card is in the Manually Disabled (MAN DSBL) state.</p> <p>If the self-tests pass, a message indicating this and card id is output.</p> <p>If the self-tests fail, a message is output describing which self-test failed. It is useful to note that the first test that fails will abort the self-test sequence, so this command only indicates one test failure, even if multiple tests might fail.</p>	msdl-18

STAT AML (x) Get AML status. msdl-18

This command outputs the status of layer two and layer seven of one or all configured AMLs. The designation (DES) of the AML is output if it has been defined for the port in LD 17.

Examples:

```
AML: 01 MSDL: 08 PORT: 00
LYR2: DSBL AUTO: OFF LYR7: DOWN
DES: MERIDIAN_MAIL
AML: 04 ESDI: 10
LYR2: EST AUTO: ON LYR7: ACTIVE
```

STAT APL x Display status of AUX link x. apl-1

STAT CMS x Get status of Command and Status link. csl-8

Status may be:

1. DOWN = CSL is not available. Link layer may not be up (Enhanced Serial Data Interface state is not CONNECTED) or there may be no polling message response after two tries.
2. DOWN AUTOSETUP = Meridian 1 software is attempting Auto Set-Up of a CSL, but the CSL is not available. Link layer (HDLC protocol) may not be up (ESDI state is not connected) or there may be no polling message response after two tries.
3. ACTIVE EMPTY = CSL is in ACTIVE state and there are no messages waiting to be sent.
4. ACTIVE NOT EMPTY = CSL is in ACTIVE state and there are some messages in the queue waiting to be sent.
5. ACTIVE FULL = CSL is in ACTIVE state and the call register queue is full of messages to be sent. It may be an indication of a problem.
6. STANDBY = CSL is in standby mode. The Enhanced Serial Data Interface (ESDI) has established the link layer and can become ACTIVE (switchover).
7. ACTIVE EMPTY CCR DISABLE = Customer Controlled Routing feature is not implemented or not enabled.

Use STAT AML x command in X11 Release 18 and later.

STAT CNFG	<p>Get status of link monitor/simulator configuration.</p> <p>Display link monitor/simulator configuration status. The system will respond according to the current configuration as follows:</p> <ul style="list-style-type: none"> — *NOT CNFG - if system is not configured — *CNFG INT/SIM CSLAPL x CSLSIM x if the system is in internal maintenance mode; shows link numbers of CSLSIM and CSL application program — *CNFG FLD CSL x if the system is in field maintenance mode; shows CSL link number 	csl-8
STAT CSDI x	Get status of SDI port x.	basic-1
STAT DSP LNK x	Get status of all Displays on link x.	apl-1
STAT ELAN	Check status of all configured AML over Ethernet (ELAN) links	nxcc-22
STAT ELAN x	Check status of specific AML over Ethernet (ELAN) link x	nxcc-22
STAT ESDI x	<p>Get status of ESDI x.</p> <p>Status may be:</p> <ol style="list-style-type: none"> 1. DISABLED = ESDI cannot communicate with the Meridian. Interrupt is disabled. 2. ENABLED = Meridian 1 has already down-loaded parameters to ESDI. ESDI is in internal WAIT state. Self-test can only be performed while in this state. CON ESDI command can also be issued to bring up the link layer. 3. CONNECTED = ESDI has already brought up the link layer and is ready to send and receive messages (result of entering CON ESDI x command). 4. AUTO SETUP = ESDI is trying to automatically bring up the link layer for the High-Level Data Link Control (HDLC) for CSL application. This state will occur during automatic recovery of the CSL, or after the ACMS x command has been issued. <p>Use STAT AML x command in X11 Release 18 and later.</p>	csl-8

STAT HSL	Get high-speed link status. Response can be either: 1. UP 2. DOWN, or 3. NOT READY	lnk-2
STAT IALM <vsid>	Print the status of the integrated alarms application on the specified VAS, where: <ul style="list-style-type: none">• ACTIVE = active IALM application• INACTIVE = inactive IALM application• MANDIS = manually disabled IALM application (disabled in LD 48)• LINKOOS = inactive IALM application (because link to the AP is out of service)	ialm-21
STAT ICP (x)	Display software status of one or all ICP links.	icp-5
STAT ISDI x	Get status of hardware AUX link SDI x.	apl-1
STAT LSL	Get low-speed link status. Response can be either UP, DOWN or NOT READY. This command is invalid in X11 release 19 and later.	lnk-2
STAT MON (x)	Get status of one or all message monitors. The system will respond with the status. If all monitors are disabled, the response is: MSGO DIS MSGI DIS PACO DIS PACI DIS X25I DIS X25O DIS If the monitor function is enabled, for outgoing messages on two links, the response is: MSGO ENL CSL x	csl-8

STAT MSDL (x (FULL))

msdl-18

Get MSDL status.

This command outputs the status of MSDL cards. Without any optional parameters (no card number, etc.), the status of all MSDL cards in the system is output.

When a card number alone is provided with the command, the status of the card is output along with additional information regarding the applications configured on the card.

Specifically, for each D-channel or AML configured on the card, the application name, logical number and port status is output.

For example:

```
MSDL x: ENL
AML 11 DIS    PORT 1
DCH 25 OPER PORT 2
AML 03 OPER PORT 3
```

With Release 24 and later, the status output will include the overloaded state of the individual ports. The benefit, individual ports with a high incoming message rate will be locked-out, operation of the other ports will be unaffected.

msdl-24

Prior to Release 24, one overloaded port would disable the MSDL card.

For example:

```
MSDL x: ENL
SDI 7 OVLD PORT 0
AML 11 DIS    PORT 1
DCH 25 OPER PORT 2
AML 03 OPER PORT 3
```

If the FULL option is entered along with the MSDL number, the Meridian 1 outputs all the information output for the 'STAT MSDL x' command along with the following additional information:

- card ID
- bootload firmware version
- basecode version
- basecode state
- when the basecode was activated (if it is active)
- each application version
- each application state
- when each the application was activated (if it is active)

The card status is output on the first line and can be any one of the following:

MSDL x: ENBL - card is enabled

MSDL x: MAN DSBL - card disabled by the DIS MSDL command

MSDL x: SYS DSBL reason - card has been disabled by the system

The system disabled state may be due to any of the following:

1. SYS DSBL- NOT RESPONDING
 - If the MSDL is in this state, the implication is that the Meridian 1 has attempted to communicate with the MSDL and was not successful. It is possible that the card is not present in the shelf. If it is present, then it is possible that the software on the card is unable to respond to messages from the Meridian 1.
 - **Action:** Check to see if the card is properly inserted in its slot. If it is (and has been for more than a few minutes), then check the console output for MSDL or ERR messages and take the appropriate action for the error message.
 -

- It may be that the rotary switch setting on the MSDL card is not set properly. To keep the Meridian 1 from continuously attempting recovery of the MSDL, use the 'DIS MSDL x' command to put the card in the Manually Disabled (MAN DSBL) state.

2. SYS DSBL- SELF-TESTING

- If the MSDL is in this state, self-tests are in progress.
- **Action:** Wait for self-tests to complete and for the Meridian 1 to examine the results. Under normal circumstances, self-tests take less than one minute to complete. However, when an erasable EPROM on the card has been cleared, self-tests may take between five and six minutes to complete. Therefore, it is prudent not to take any action at this time.

3. SYS DSBL- SELF-TESTS PASSED

- This is a transient state. A card in a transient state has successfully completed self-tests and the Meridian 1 either is about to begin downloading the MSDL base software, or has just completed downloading the MSDL base software and is about to attempt to enable the card.
- **Action:** Wait for the Meridian 1 to begin the next step of recovery. If a more immediate recovery is desired, use the 'DIS MSDL x' command followed by the 'ENL MSDL x' command. This causes essentially the same recovery action to be taken. However, it may be faster (since it is being done as a result of input from the craftsman).
-

4. SYS DSBL- SELF-TESTS FAILED

- If the MSDL is in this state, self-tests have executed and failed on this card.

- **Action:** Use the 'STAT MSDL x' command to determine reason for self-test failure. Disable the MSDL card using the 'DIS MSDL x' command, then use the 'SLFT MSDL x' command to execute the self-tests again.
 - If the self-tests pass, attempt to enable the card using the 'ENL MSDL x' command. If the card fails the self-tests again, record the results and replace the card.
5. SYS DSBL- SRAM TESTS FAILED
- If the MSDL is in this state, self-tests have executed and passed, however when the Meridian 1 attempted to perform read/write tests to the shared RAM on the MSDL, it detected a failure.
 - **Action:** Same as for self-test failure. If the attempt to enable the card fails, record the results and replace the card.
6. SYS DSBL- OVERLOAD
- The Meridian 1 has received too many messages from the MSDL. This is considered to be unacceptable, in that this much of a demand may interfere with other system functions.
 - **Action:** If the MSDL is left in this state, the Meridian 1 will attempt to bring the card back into service within a few minutes. If this is not desired, disable the card using the 'DIS MSDL x' command.
 -
 - It is also advisable to identify a specific port or application that may be responsible for the overload. The identification can be made by disabling individual links/ports on the MSDL and letting the remaining links/ports operate normally.
7. SYS DSBL- RESET THRESHOLD
- If the MSDL is in this state, the Meridian 1 has detected more than four resets within ten minutes. This is considered to be unacceptable, as a normally operating card should not reset so often.
 -

- It is possible that the card may be in this state due to a Fatal Error or Self-test failure from which no recovery was successful. (As the recovery from Fatal Errors and Self-test failures begins with resetting the card, repeated attempts at recovery may cause the reset threshold to be reached.)
 -
 - **Action:** Disable the card using the 'DIS MSDL x' command and execute the 'SLFT MSDL x' command. If self-tests pass, attempt to enable the card using the 'ENL MSDL x' command. If the problem recurs, try force downloading the software to the MSDL using the 'ENL MSDL x FDL' command.
 -
 - If the problem continues to recur and resets continue because of a repeated fatal error, attempt to isolate the problem by disabling all links/ports controlled by one application (e.g., all D-channels or all AMLs). If no manual intervention is taken by the craftsman, the Meridian 1 will attempt to bring the card back into service beginning at midnight.
8. SYS DSBL- FATAL ERROR
- If the MSDL is in this state, the card encountered a fatal condition from which it could not recover. In response to the 'STAT' command, the cause of the fatal error will be displayed.
 -
 - If the 'STAT' command is not entered while the card is in this state, the MSDL302 message printed at the time of the state transition will indicate the cause of the fatal error.
 - **Action:** The Meridian 1 will attempt to bring the card back into service automatically. While the card is in this state, it is recommended that the craftsman do nothing. If the Meridian 1 is unable to recover the card, the system disabled substate will be changed to indicate the reason recovery was not possible. The craftsman should then take the recommended action for that new substate.

9. SYS DSBL- NO RECOVERY ATTEMPTED UNTIL
MIDNIGHT

- When this is output after the SYS DSBL message, the Meridian 1 has attempted to recover the card but has repeatedly failed. One example of this condition is when the background recovery mechanism has failed to download the MSDL Base Code five times in a row.
- **Action:** Disable the card using the 'DIS MSDL x' command, test the card using the 'SLFT MSDL x' command, and if self-tests pass, enable the card using the 'ENL MSDL x' command.
-
- If downloading of the MSDL Base Code is necessary, it will be attempted in response to the enable command. If no manual intervention is taken, the Meridian 1 will again attempt recovery beginning at midnight.

STAT SDI HIGH	Get status of high-speed link port. The response can be either ENL (enabled) or DIS (disabled).	Ink-2
STAT SDI LOW	Get status of low-speed link port. The response can be either ENL (enabled) or DIS (disabled).	Ink-2
STAT STA x	<p>Get status of STA application.</p> <p>When x (STA ID number) is specified, the STA state, port number, port type, port state, and system description are displayed.</p> <p>If x is not specified, and the application is enabled, the state and port information is given.</p> <p>If x is not specified, and the application is in any state other than enabled, only the STA status is given. No port or system information is displayed. .</p>	sta-19

Possible output follows:

1. **Application state and Target state:**
ENABLED, MANUAL DISABLE, SYSTEM DISABLE,
AWAIT DISABLE, AWAIT APPL ENABLE, AWT
CONF DOWNLOAD
2. **Port type:** ADM, SYS, TTY
3. **Port state:**
NO SDI/STA, DISABLED, ENABLED, TESTING,
KEYBOARD TST, AWAIT VT-200, DTR DOWN,
AUTOBAUDING, AWT AUTOBAUD, ABD SCANNING,
DEFAULT ABD, NO MODEM, IN SESSION, AWAIT
ENABLE

System description is entered as part of the port configuration. For the additional port used to shadow the STA application, the system description is SHADOW TTY.

STAT VMBA <vsid>

vmba-19

Get the status for the Voice Mailbox Administration application. Enter the command in the following format:

STAT VMBA <vsid> <NNNN>

Where:

- vsid = the VAS ID where the VMBA is configured
- NNNN = VMBA audit or upload function. You may enter either AUDT or UPLD, where:
 - AUDT = mailbox database audit, or
 - UPLD = mailbox database upload

AUDT and UPLD are optional entries. The VAS ID must be entered. The status output is shown below:

STAT VMBA <vsid>

- VMBA <ACTIVE or INACTIVE>
- AUDIT <ACTIVE or INACTIVE>
- UPLOAD <ACTIVE or INACTIVE>

STAT VMBA <vsid> AUDT

- AUDIT INACTIVE, or AUDIT ACTIVE

Where:

- n AUDITED
- n MISMATCHES FOUND/CORRECTED
- n ERRORS

STAT VMBA <vsid> UPLD

- UPLOAD INACTIVE, or UPLOAD ACTIVE

Where:

- n UPLOADED
- n DELETED
- n ERRORS

STAT VMBA <vsid> AUDT

vmba-19

Get the status for the Voice Mailbox Database audit. Enter the command in the following format.

STAT VMBA <vsid> AUDT

The status output is shown below:

STAT VMBA <vsid> AUDT

- AUDIT INACTIVE, or AUDIT ACTIVE

Where:

- n AUDITED
- n MISMATCHES FOUND/CORRECTED
- n ERRORS

STAT VMBA <vsid> UPLD

vmba-19

Get the status for the Voice Mailbox Database upload. Enter the command in the following format.

STAT VMBA <vsid> UPLD

The status output is shown below:

STAT VMBA <vsid> UPLD

UPLOAD INACTIVE, or UPLOAD ACTIVE

Where:

- n UPLOADED
- n DELETED
- n ERRORS

SWCH AML x y

Switch active (x) and standby (y) AML. This is AML switchover, where x is the active AML switching to standby and y is the standby AML to become active.

msdl-18

SWCH CMS x y Switch active (x) and standby (y) CSL. This is CSL switchover, where x is the active CSL switching to standby and y is the standby CSL to become active. csl-8
Use SWCH AML x y in X11 Release 18 and later.

UPLD AML x TBL y Upload parameter table 1 to 4 from AML x (MSDL only). msdl-18
The MSDL AML maintenance error log table, is uploaded from the MSDL card and is displayed on the TTY screen.
The parameter tables are:

- TBL1 = AML maintenance error log table
- TBL2 = AML downloaded parameter table
- TBL3 = AML protocol error log table
- TBL4 = AML traffic table

MSDL Requirement: The MSDL card must be enabled. The AML layer two must be enabled.

Example: ENL MSDL x followed by ENL AML x LYR2 must have been executed at an earlier time.

Action: MSDL AML table is uploaded and is displayed on the TTY screen.

This command is not available for the ESDI card.

Issued:	June 1999
Status:	Standard
X11 Release:	24

LD 51: Intercept Computer Update

This program updates the Meridian 1 with the intercept service interface information that is stored. The program can be run manually or run in the midnight routine for all customers.

Basic commands

CUST ALL	Update all customers.
CUST c ...c	Update 1 to 5 customers (0-99).
END	Terminate the program.
UPD	Update the transfer information.

Alphabetical list of commands

Command	Description	Pack/Rel
CUST ALL	Update all customers.	icp-5
CUST c ...c	Update 1 to 5 customers (0-99). Repeat the command if more than 5 customers are to be updated.	icp-5
END	Terminate the program.	icp-5
UPD	Update the transfer information.	icp-5

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LD 54: Multifrequency Signaling Diagnostic

Multifrequency Compelled Signaling (MFC) or Multifrequency Signaling (MFE) provides a handshaking facility between the Meridian 1/Meridian SL-1 and the Central Office or Public Exchange (CO/PE) or between other PBXs over network/Tie trunks.

The XMFC card (for superloop and Option 11 only) can be used on MFC or MFE. XMFC card has four units.

The MFD overlay program is used to diagnose, display or change the status of the MFC or MFE send/receive (S/R) cards.

The program resets all available MFC or MFE cards (for channels on AXMFC card) and performs loop back tests during the midnight routines. After every SYSLOAD or power-up, all available MFC or MFE cards are initialized.

The program can be loaded by the system after every power-up (or SYSLOAD), as part of the daily routines, or loaded manually to enter commands.

Hardware Initialization after SYSLOAD

After system power-up, every idle MFC or MFE card is initialized (self-tested). During this test the card is disabled (LED on faceplate ON) and the S/R card microprocessor executes sequential loop back tests on both channels.

On power-up SYSLOAD on XMFC, pack performs self-test, LED blinks 3 times to indicate self-test pass

- Cardlan polling message indicates that XMFC pack has powered up.
- MSL-1 down loads the configuration (E0XXH)
- MSL-1 enables the card (C000H)
- Pack performs self-test again. If self-test passes (8000H), then LED is OFF and pack is enabled. If self-test fails (80XXH), LED is ON and pack is disabled.

These tests entail looping the sender output of each card to the Receiver input. The sender transmits all thirty tone pairs (1 to 15 digits for both DOD/DID modes) with a default signal level of zero. Each time the receiver detects a tone pair, the microprocessor verifies the digit received. At the end of the test the microprocessor tries to send two test results (one for each channel) to the CPU.

The CPU cannot receive the results of the test because the card is disabled. A command to enable the card is issued and the microprocessor sends the test results to the CPU.

Loop around test during daily routines

This loop around test is conducted by the system during the midnight routines. The midnight test is identical to the test conducted after power-up except for the following points:

- the midnight test is conducted on one channel at a time for all available MFC or MFE cards
- the MFC or MFE S/R card remains enabled (LED on faceplate OFF)
- the midnight self-test can also be loaded manually by issuing a command on the specified channel

Loop around test by command

The loop around tests are performed by maintenance personnel on a specified channel of the MFC or MFE S/R card. There are two types of tests:

- one is identical to the midnight test which is conducted on the specific channel
- the second is conducted on a specific channel for a specified digit and signal level

LD 54 also performs the following functions:

- resets all idle MFC or MFE cards once a day during the midnight routines
- disables MFC or MFE card or channel. It enables MFC or MFE card or channel
- determines the status of MFC card or channel
- lists all disabled MFC or MFE channels
- handles other common overlay operations (such as clear alarms)

Note 1: Use the DISL command to force-disable the MFC or MFE channel or card.

Note 2: Use the DISI command in LD 32 to disable the card when idle.

Note 3: No more than 50% of MFC channels can be disabled at one time as a result of system or manually initiated tests. However, this constraint does not apply using disable commands.

MFC/MFE error handler and counter

The MFC/MFE error handlers are resident programs that monitor the number of MFC or MFE signaling errors. A one-word error field in the MFC or MFE block is initialized to zero. The Error Handler program allows a maximum of 10 errors. After every successful use of the MFC or MFE channel, the error field will decrement by one, if it is not already at zero. After every failure of the MFC or MFE channel the error field will increment by one.

In Generic X11, the Error Handler program generates only the ERR700 L S C U message. When an Error Handler code is output, the MFD Overlay must be loaded manually and the MFC or MFE channels tested.

Basic commands

ATST l s c u	Invoke automatic loop around test for specified unit
CDSP	Clear maintenance display to 00 or blank
CMAJ	Clear major alarm and reset power fail transfer
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c (not applicable for Release 22)
DISC l s c	Disable specified MFC or MFE card
DISU l s c u	Disable specified MFC or MFE channel
END	Stop further testing or cancel active command
ENLC l s c	Enable specified MFC or MFE card
ENLU l s c u	Enable specified MFC or MFE channel
MIDN 0	Reset all idle MFC or MFE cards
MIDN 1	Initialize all idle MFC or MFE cards
MTST l s c u d l	Invoke manual loop around test on unit with specified digit and level
STAT	List all disabled MFC channels in the system
STAT l s c (u)	Get status of specified MFC or MFE card or unit

Option 11 commands

The following commands are applicable to Option 11 systems:

ATST c u	Invoke automatic loop around test for specified unit
DISC card	Disable specified XMFC/XMFE card
DISU c u	Disable specified XMFC/XMFE unit
ENLC card	Enable specified card
ENLU c u	Enable specified unit
MIDN 0	Reset all idle XMFC/XMFE cards
MIDN 1	Initialize all idle XMFC/XMFE cards
MTST c u d l	Invoke manual loop around test on unit with specified digit and level
STAT	List all disabled XMFC/XMFE channels in system
STAT card	List status of all units on card
STAT c u	List status specified TN

Alphabetical list of commands

Command	Description	Pack/Rel
ATST c u	Invoke automatic loop around test for specified unit. (Option 11)	
ATST I s c u	Invoke automatic loop around test for specified unit. Performs automatic loop around test on specified unit with default signal level of zero. All 30 tone pairs are tested and verified by the card microprocessor. Digits 1 to 15 signify Forward Signals 1 to 15 (DOD mode) and digits 16 to 30 signify Backward Signals 1 to 15 (DID mode). The response is OK when the unit passes test and is enabled. If the receiver sends no message within a predefined time period, an error message indicating time-out is printed. If the receiver indicates it has received a different signal than that sent, the failed signal, an error message and the TN are printed.	basic-1
CDSP	Clear maintenance display to 00 or blank.	basic-1
CMAJ	Clear major alarm, reset power fail transfer and clear power fault alarm.	basic-1
CMIN	Clear the minor lamp on a system basis.	alarm_filter-22
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-1
CMIN c	Clear minor alarm indication on attendant consoles for customer c. (not applicable for Release 22)	basic-1
DISC card	Disable specified XMFC/XMFE card (Option 11)	
DISC I s c	Disable specified MFC or MFE card. LED on card is ON when disabled.	basic-1
DISU c u	Disable specified XMFC/XMFE unit (Option 11)	

DISU l s c u	Disable specified MFC or MFE channel. When the other unit on the card is also in a disabled state in the software, a message is sent to disable the MFC or MFE card. LED on card is ON when disabled.	basic-1
END	Stop further testing or cancel active command.	basic-1
ENLC card	Enable specified XMFC/XMFE card (Option 11)	
ENLC l s c	Enable specified MFC or MFE card. Response is OK. A message is sent to the MFC or MFE card to turn off the LED.	basic-1
ENLU c u	Enable specified XMFC/XMFE unit (Option 11)	
ENLU l s c u	Enable specified MFC or MFE channel. Response is OK. A message is sent to the MFC or MFE card to turn off the LED.	basic-1
MIDN 0	Reset all idle MFC or MFE cards. Resets all idle MFC or MFE cards and performs loop around tests on all idle channels.	basic-1
MIDN 1	Initialize all idle MFC or MFE cards. Recommended after installation.	basic-1
MTST c u d l	Invoke manual loop around test on unit with specified digit and level. (Option 11)	
MTST l s c u d l	Invoke manual loop around test on unit with specified digit and level. This command performs the manual loop around test on specified unit with specified digit and signal level. MFC-30 tone pairs are tested and verified by the Meridian 1 CPU. Digits 1 to 15 indicate forward signals 1 to 15 (DOD mode) and digits 16 to 30 indicate backward signals 1 to 15 (DID mode). MFE-15 tone pairs are tested and verified. Digits 1-15 represent Forward Signals 1-15 (DID mode). Digit 0 represents the control frequency. Table 21 on 320 presents MFC sender (transmit) levels. These levels are output by the MFC pack and do not include any pads that may be put in by the trunk pack.	basic-1

Table 21
MFC sender/transmit levels

Digit level	Level at S/R card	Digit level	Level at S/R card
0	8 dBm	8	4 dBm
1	11 dBm	9	5 dBm
2	12 dBm	10	6 dBm
3	13 dBm	11	7 dBm
4	14 dBm	12	9 dBm
5	15 dBm	13	10 dBm
6	16 dBm	14	spare (8) dBm
7	31 dBm	15	spare (8) dBm

The MFE signal level 0 = -10.5 dBm level with skew -7.0 dBm control frequency level. Signal levels 1-7 are used for internal test purposes.

The response is OK when the unit passes the test and is enabled. If the unit fails the test, the appropriate error message and the TN are printed.

STAT	List all disabled MFC channels in the system.	basic-1
STAT c u	Get status of specified MFC or MFE card or unit.	
STAT I s c (u)	Get status of specified MFC or MFE card or unit. Status is one of: IDLE, BUSY, MBSY, DSBL or UNEQ for both channels.	basic-1

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X11 Release:	24

LD 60: Digital Trunk Interface and Primary Rate Interface Diagnostic

The LD 60 diagnostic program can be run in midnight routines or loaded manually to enter commands.

On Option 11 Systems, LD 60 is used to maintain:

- NTAK20 Clock Controller
- NTAK09 1.5 Mb/s (DTI/PRI) Interface Card
- NTAK10 2.0 Mb/s (DTI) Interface Card
- NTAK79 2.0 Mb/s (PRI)

This program is used to maintain the following on other systems:

- QPC471/775 Clock Controller
- QPC472 1.5 Mb/s Digital Trunk Interface (DTI)
- QPC536 2.0 Mb/s Digital Trunk Interface (DTI2)
- QPC720 Primary Rate Interface (PRI)
- NT8D72AA 2.0 Mb/s Primary Rate Interface (PRI)

Channel Timeslot Mapping

If a system loop is configured with a SYS-12, AXE-10 SWE, NUMERIS, SwissNet D-channel (SWISS), TCNZ, or EuroISDN, then the following message to explain the difference in timeslot to channel mapping between the Meridian 1/Meridian SL-1 and the public network will be printed on loading the O verlay. The heading will differ according to the interface supported by the phase.

Example Message:

M 1/SL-1 — SYS-12
AXE-10 SWE
NUMERIS
SWISS
TCNZ
EuroISDN

Table 22: Channel Timeslot Mapping

Channel	M 1/SL-1	Network	Timeslot
B	1-15	1-15	1-15
B	16-30	17-31	17-31
D	31	16	16

Basic Commands

DTI/PRI commands

ATLP (0), 1	Disable (default) or enable midnight auto loop test
CDSP	Clear maintenance display to 00 or blank
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c
DISI loop	Disable loop when all channels are idle
DISL loop	Disable network and DTI/PRI cards of loop
DLBK loop	Disable remote loop back test per RLBK command
DLBK I ch	Disable remote loop back test per RLBK I ch command
DSCH I ch	Disable channel ch of loop
ENCH loop	Enable all channels on 2.0 Mb/s DTI/PRI
ENCH I ch	Enable channel ch of DTI/PRI loop
ENLL loop	Enable network and DTI/PRI cards of loop
LCNT (loop)	List contents of alarm counters on one or all DTI/PRI loops
LOVF c r	List threshold overflows for customer c (0-99) and route r (0-511)
RCNT	Reset alarm counters of all DTI/PRI loops
RCNT loop	Reset alarm counter of DTI/PRI loop
RMST loop	Perform self-test on loop
RMST I ch	Perform self-test on specified channel (2.0 Mb/s DTI/PRI only)
RLBK loop	Close loop at carrier interface point for testing
RLBK I ch	Close channel ch at carrier interface point
RSET I ch	Reset thresholds for channel ch
SLFT loop	Invoke hardware self-test on loop
SLFT I ch	Invoke partial hardware self-test on channel ch
STAT	Get status of all loops
STAT loop	Get status of DTI/PRI loop
STAT I ch	Get status of channel ch

Clock controller commands

DIS CC x (0,1)	Disable system clock controller x (0 or 1)
DSCK loop	Disables the clock for loop
DSYL loop	Disable yellow alarm processing for loop
ENCK loop	Enable the clock for loop
ENL CC x (0,1)	Enable system clock controller x (0,1)
ENYL loop	Enable yellow alarm processing for loop
EREF	Enable automatic switchover of system clocks
MREF	Disable switchover of system clocks
SSCK x (0,1)	Get status of system clock x (0,1)
SWCK	Switch system clock from active to standby
TRCK aaa	Set clock controller tracking to primary, secondary or free run

Option 11 commands

The following commands are applicable to Option 11 systems:

ATLP (0), 1	Disable (default) or enable midnight auto loop test. Automatic Card Test, checks the same functions as the self-test.
DIS CC 0	Disable system clock controller 0.
DISI card	Digital card is disabled only when all the channels are IDLE. STATUS LEDs are lit. Channel states and loop state are set to DSBL.
DISL card	Disables Digital card. Active calls are forced disconnected by on-hook simulation. All channels are marked as DSBL.
DLBK card	Disables remote loop back test of RL BK on card. Card will remain in DSBL state.
DLBK c ch	Disables remote loop back test on channel ch of card c. The channel will remain in DSBL state.
DSCH c ch	Channel ch of Digital card c is disabled. Status of the channel is marked DSBL.
DSCK card	Disable the clock for card. (Applicable for secondary reference only.)
DSYL card	Disable yellow alarm processing for card.
ENCH card	Enable all the channels on card. The status of each equipped channel will be set to IDLE.
ENCH c ch	Channel ch of card is enabled. The status of the channel is marked IDLE.
ENCK card	Enable the clock reference for secondary clock only.
ENL CC 0	Enable system clock controller 0
ENLL card	Enables card. All channels are set to IDLE status.
ENYL card	Enable yellow alarm processing for card.
LCNT	Prints contents of all alarm counters of all Digital cards.
LCNT card	Prints contents of all alarm counters for card.
RCNT	Resets all alarm counters of all Digital cards.
RCNT card	Resets all alarm counters for card.
RLBK card	Performs external loop back test on card. (Card must be disabled.)
RLBK c ch	Performs external loop back test on channel ch of card c. (Channel must be disabled.)
RMST card	Performs a far end loop test on card. (Card must be disabled.)
RMST c ch	Performs a far end loop test on channel ch of card c. (Channel must be disabled.)
RSET c ch	Reset thresholds for channel ch

LD 60

SLFT card	Invokes Digital hardware self-test on card. (Card must be disabled.)
SLFT c ch	Invokes Digital hardware self-test on channel ch of card c.
SSCK (0)	Get status of primary system clock 0.
STAT card	Prints status (BUSY/IDLE/DSBL/MNT-BUSY) of all channels on card.
STAT c ch	Prints status (BUSY/IDLE/DSBL/MNT-BUSY) of channel ch on card c.
TRCK aaa	Set clock controller tracking to primary, secondary or free run.

Alphabetical list of commands

Command	Description	Pack/Rel
ATLP (0), 1	<p>Disable (0) or enable (1) daily routine auto loop test. Where:</p> <ul style="list-style-type: none"> • 1 = loop test enable; causes far-end to raise and clear yellow alarm • 0 =run the partial loop test; there is no interaction for far-end loop (default value) <p>LD 60 is included in the daily (midnight) routines if defined by LD 17 prompt DROL. ATLP is only run if LD 60 is included in the daily routines.</p> <p>If ATLP = 1, and all 24 channels on the loop are idle, then the DTI/PRI card is disabled and a self-test is performed on each channel. All DTI/PRI cards are tested, one at a time. If a D-channel is on the loop, it is temporarily released and reestablished. If one or more channels are busy, the test is not performed on the loop.</p> <p>If ATLP = 0, then an "AUTO TEST DSBL" message is output and only one channel is tested. The channel is randomly selected by software, it cannot be specified.</p> <p>Automatic Card Test, checks the same functions as the self-test. (Option 11)</p>	dti/pa-5
CDSP	Clear maintenance display to 00 or blank.	dti/pa-5
CMIN ALL	Clear minor alarm indication on all attendant consoles.	dti/pa-5
CMIN c	Clear minor alarm indication on attendant consoles for customer c.	dti/pa-5
DIS CC 0	Disable system clock controller. (Option 11)	
DIS CC x (0,1)	<p>Disable system clock controller 0 or 1.</p> <p>CPU 0 must be idle to disable CC 0. CPU 1 must be idle to disable CC 1. To switch CPUs, use the SPCU command in LD 35.</p>	dti/pa-5
DISI card	Card is disabled only when all the channels are IDLE. STATUS LEDs are lit. Channel states and loop state are set to DSBL. (Option 11)	

LD 60

DISI loop	Disable DTI/PRI loop when all channels are idle. The network and DTI/PRI cards are then disabled and status LEDs are lit. Channel status is set to BSY. Enter END to abort. When the PRI is physically connected to a DCHI card, the D-channels must be disabled first using LD 96.	dti/pri-5
DISL card	Disables card. Active calls are force disconnected by on-hook simulation. All channels are marked as DSBL and status LEDs are lit. (Option 11)	
DISL loop	Disable network and DTI/PRI/DTI2/PRI2 cards of loop. (PRI & PRI2 loops cannot be disabled unless associated D-channel is disabled first using LD 96). Active calls are force disconnected by on-hook simulation. All channels are disabled and status LEDs are lit.	dti/pri-5
DLBK card	Disables remote loop back test of RLBK on card. Card will remain in DSBL state.(Option 11)	
DLBK c ch	Disables remote loop back test of RLBK on channel ch. The channel will remain in DSBL state. (Option 11)	
DLBK loop	Disable remote loop back test per RLBK command. Loop remains disabled.	dti/pri-5
DLBK l ch	Disable remote loop back test per RLBK loop ch command. The channel remains disabled.	dti/pri-5
DSCH c ch	Channel ch of Digital card is disabled. Status of the channel is marked DSBL. (Option 11)	
DSCH l ch	Disable channel ch of loop l.	dti/pri-5
DSCK card	Disable the clock for card. For secondary clock reference only. (Option 11)	
DSCK loop	Disables the clock for loop, which does not have to be previously defined as the primary or secondary clock source.	dti/pri-5
DSYL card	Disable yellow alarm processing for card. (Option 11)	
DSYL loop	Disable yellow alarm processing for loop.	dti/pri-5

ENCH card	Enable all the channels of 2.0 Mb/s Digital card. The status of each equipped channel will be set to IDLE. (Option 11)	
ENCH c ch	Channel ch of Digital card c is enabled. The status of the channel is marked IDLE. (Option 11)	
ENCH loop	Enable all channels on DTI2 loop.	dti/pa-5
ENCH l ch	<p>Enable channel ch of loop.</p> <p>For TIE trunks with A+B signaling, the channel is set to the same state as the far-end. The far-end refers to the status of the channels as presented by DTI T1 port.</p> <p>With B-channel signaling, channels are placed into the IDLE state and made available for calls.</p>	dti 2 - 5
ENCK card	Enables the secondary clock reference. Primary clock reference can not be disabled through this command. (Option 11)	
ENCK loop	Enables the clock for loop, which must be previously defined as a primary or secondary clock source via service change.	dti/pa-5
END	Aborts the program.	dti/pa-5
ENL CC 0	Enable system clock controller. (Option 11.)	
ENL CC x	Enable system clock controller 0 or 1.	dti/pa-5
ENLL card	Enables card. All channels are set to IDLE status. (Option 11)	
ENLL loop	<p>Enable network and DTI/PRI/DTI2/PRI2 cards of loop.</p> <p>For TIE trunks with A+B signaling, the channels are set to the same status as the far-end; otherwise, the channels are set to idle status. The far-end refers to the status of the channels as presented by DTI T1 port. Status LEDs are deactivated.</p> <p>With B-channel signaling, channels are placed into the IDLE state and made available for calls.</p>	dti/pa-5
ENYL card	Enable yellow alarm processing for card. (Option 11)	
ENYL loop	Enable yellow alarm processing for loop.	dti/pa-5

EREF	Enables automatic switchover of primary and secondary reference clocks. Also enables recovery to primary or secondary clocks when loops associated with these clocks are automatically enabled. (not supported for Option 11)	dti/prs-5
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LCNT (card)	List contents of alarm counters on one or all of the cases listed after LCNT (loop) command. (Option 11)
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LCNT (loop)	List contents of alarm counters on one or all of the following cases:	dti/prs-5
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Case 1 1.5 Mb/s DTI/PRI

The counters are:

- BPV = bipolar violation counter
- SLIPD = frame slip deletion counter
- SLIPR = frame slip repetition count
- LOSFA = loss of frame alignment counter
- OS_BPV = 24-hr bipolar violation counter
 - a For PRI with D2, D3, or D4 framing format, 24-hr bipolar violation counter
 - b For PRI with Extended Superframe Format, 24-hr Cyclic Redundancy Check (CRC) counter
- OS_LOSFA = 24-hr loss of frame alignment counter
- OS_YEL = 24-hr yellow alarm counter

Case 2 2.0 Mb/s DTI

The counters are:

- G1 alarms
- BPV = bipolar violation counter
- FAP = frame alignment threshold counter
- SLP = maintenance threshold slip counter
- CRC = cyclic redundancy threshold counter
- AIS = alarm indication signal
- AIS64 = 64 Kb/s alarm indication signal
- FAL = loss of frame alignment
- MFAL = loss of multiframe alignment
- BIT3 = bit 3 error
- BIT6 = bit 6 error
- CFAS = loss of crc-4 multiframe alignment (Option11 only)

Case 3 2.0 Mb/s PRI

The counters are:

- BPV = bipolar violation counter
- CRC = cyclic redundancy threshold counter
- FAP = frame alignment threshold counter
- SLP = maintenance threshold slip counter
- AIS = alarm indication signal
- LFAS = loss of frame alignment signal
- LMAS = loss of multiframe alignment signal
- RAI = remote alarm indication
- LOS = loss of signal

LOVF c r	List threshold overflows for customer c (0-99) and route r (0-511). The overflows are set when the resident trunk monitor outputs a diagnostic message. Defined thresholds are HOLD, ILLR, REPT, SEIZ and SVFL (see LD 16).	dti/pra-5
MREF	Disable switchover of system clocks. Also disables recovery to primary or secondary reference clocks when loops associated with these clocks are automatically enabled. (not supported for Option 11)	dti/pra-5
RCNT (card)	Reset alarm counters for all or specified card only. (Option 11)	dti-16
RCNT (loop)	Reset alarm counters for all or specified loop only. If the DTI loop was disabled due to an error threshold overflow and the DTI may be enabled automatically when the counter is cleared, then before performing any command, such as test, that requires the DTI to be disabled you should: <ol style="list-style-type: none"> 1. disable the DTI 2. list the counters with the LCNT command 3. reset the counters with the RCNT command 4. do the test commands 	dti/pra-5
RLBK card	Performs external loop back test on card. (Card must be disabled). (Option 11)	
RLBK c ch	Performs external loop back test on Digital Channel ch of card. (Channel ch must be disabled). (Option 11)	

RLBK loop	Close loop at carrier interface point for testing. Allows the far-end to perform an external loop back test on the carrier span using the RMST command. This command closes the loop at the carrier interface point of the DTI/PRI. The DTI/PRI loop must be disabled first using the DISI or DISL loop commands.	dti/pra-5
RLBK l ch	Close channel ch at carrier interface point. Allows the far-end to perform an external loop back test on the carrier span. The loop remains enabled, but closes the specified channel at the carrier interface point of the DTI/PRI. The DTI/PRI channel must be disabled first using the DSCH loop ch command.	dti/pra-5
RMST card	Performs a far end loop test on card. (Card must be disabled). (Option 11)	dti-16
RMST c ch	Performs a far end loop test on Channel ch of card c. (Channel ch must be disabled). (Option 11)	dti-16
RMST loop	Perform remote loop back test on loop. The far-end must be in the remote loop back mode. (RLBK command has been issued at the far-end)	dti/pra-5
RMST l ch	The far-end channel must be in the remote loop back mode. (RLBK command has been issued at the far-end)	dti 2 - 14
RSET c ch	Reset thresholds for channel ch on card c. (Option 11)	
RSET l ch	Reset thresholds for channel ch on loop l.	dti/pra-5
SLFT card	Invokes Digital hardware self-test on card. (Card must be disabled). (Option 11)	
SLFT c ch	Invokes Digital hardware self-test on channel ch on card c. (Option 11)	
SLFT loop	Invoke DTI/PRI hardware self-test on loop. This command tests speech path continuity, zero code suppression, remote alarm detection, and A&B bit signaling. The loop must be disabled first using the DISI or DISL loop command.	dti/pra-5

SLFT I ch	Invoke partial hardware self-test on channel ch. The DTI/PRI channel must be disabled first using the DSCH command.	basic-1
SSCK (0)	Status of Primary clock (Option 11)	
SSCK x	Get status of system clock 0 or 1. The SSCK command indicates the active controller as well as active primary or secondary reference clock source or free run. Response may be: <ol style="list-style-type: none"> 1. AUTO SWREF CLK - ENBL = automatic switchover of system clocks enabled 2. AUTO SWREF CLK - DSBL = automatic switchover of system clocks disabled 3. CLOCK ACTIVE = the active controller 4. DSBL = clock disabled 5. ENBL = clock enabled 6. REF CLK ERR = possible faulty cable from CC to DTI/PRI, or faulty Clock Controller 7. SYSTEM CLOCK - FREE RUN, PREF or SREF = clock is in free run mode or tracking to the primary (PREF) or secondary (SREF) reference loop 8. VCXO AGING ERROR = the timing crystal is faulty, replace the clock 	dti/pa-5
STAT	Get status of all digital loops. The types of loops are: <ol style="list-style-type: none"> 1. PRI = Primary Rate Interface 2. PRI2 = 2.0 Mb/s Primary Rate Interface 3. DTI = Digital Trunk Interface 4. DTI2 = 2.0 Mb/s Digital Trunk Interface 5. DLI = Digital Link Interface 6. JDMI = Japan Digital Multiplex Interface 	dti/pa-5
STAT card	Prints status (BUSY/IDLE/DSBL/MNT-BUSY) of all channels on Digital Card. See STAT loop for possible responses. (Option 11)	dti-16
STAT c ch	Prints status (BUSY/IDLE/DSBL/MNT-BUSY) of channel Ch, for Digital card. (Option 11). See STAT I ch for possible responses.	dti-16

STAT loop

Get status of digital loop. Sample output:

dti/pra-5

AAA TRK LOOP x - **BBBB**
SERVICE RESTORE: YES/NO
YEL ALM PROCESS: YES/NO
ALARM STATUS: NO ALARM/RED(local) ALARM

Where: **AAA** may be :

1. DTI
2. DTI2
3. PRI
4. PRI2
5. TIE
6. DID
7. DTI LINK (DTI link loop = DLI)

Where: **BBBB** may be:

1. DSBL = Hardware of specified digital loop is disabled
2. ENBL = Hardware of specified digital loop is enabled
3. RL BK = Hardware of specified digital loop is in remote loop back mode
4. DISI PENDING = DSI command is in progress
5. TRACKING = system clock is tracked to this loop
6. IDLE = Hardware of specified digital loop is idle
When **AAA** = TIE, IDLE ISPC indicates that the channel is an established ISPC link ready to be used by any end-users having access to the associated ISPC route.
7. SERVER RCVY = server has not recovered status of DTI LINK loop. Channels will not be allocated for call processing until this status is removed by the server
8. BUSY = Hardware of specified digital loop is busy
When **AAA** = TIE, BUSY ISPC indicates that the channel is an established ISPC link which is used by end users on the PBXs.
When **AAA** = DID, BUSY ISPC indicates that the ISPC link is established to the Central Office. The status "BUSY" is independent to ISL feature usage of the ISPC link.
9. MSBY = Hardware of specified digital loop is in make busy mode

When **AAA** = TIE, MSBY ISPC indicates that the configured ISPC link is one of the following:

- a not established yet
- b established, but the ISL D-channel which controls its usage not established

Where: **SERVICE RESTORE** may be:

1. YES = restore service automatically if alarm is removed
2. NO = loop can only be manually enabled

Where: **YEL ALARM PROCESS** may be:

1. YES = yellow alarm processing is enabled
2. NO = yellow alarm processing is disabled

Where: **ALARM STATUS** may be:

1. NO ALARM = no alarm active
2. RED = red (local) alarm active

Action 1:

1. list alarm counters (LCNT command)
2. check for DTA messages
3. go to the fault clearing section

Where:

- YELLOW = yellow (remote) alarm active
- WAITING = DTI/PRI card is not responding. The card either did not respond to a status check or did not respond when a red alarm was cleared. Go to Action 2.

Action 2:

1. check DTI/PRI status again
2. disable, then enable the DTI/PRIPRI

STATE OF SERVICE:

- OOS = out-of-service
- NNC = no new call
- NNDC = no new data call
- MNT = maintenance

When an alarm is present (group 2 error), it is a
REMOTE ALARM

REMOTE ALARM:

- NS = alarm indication signal
- RAI = remote alarm indication

LOCAL ALARM:

- LOS = loss of signal
- LFAS = loss of frame alignment signal
- LMAS = loss of multiframe alignment signal
-

STAT I ch

Get status of channel ch. Status may be:

dti/prs-5

1. IDLE = channel is enabled and is idle
2. BUSY = channel is enabled and is call processing busy or channel is in a lockout state (far-end is disabled)
3. MBSY = channel is being used for maintenance busy, the D-channel is down, or far-end channel is disabled
4. DSBL = channel is disabled
5. DSBL (SERVER) = channel is being used for server maintenance and is disabled for the duration (1.5 Mb/s DTI digital link interface only)
6. FE MBSY = near end is idle, far-end is maintenance busy
7. FE DSBL = near end is idle, far-end is disabled
8. FE DSBL = far-end B-channel is disabled
9. FE MBSY = far-end B-channel is in maintenance mode
10. UNEQ = channel is not equipped

When the loop is a Phantom loop, it is possible to receive the status messages: TIE IDLE ISPC, TIE BUSY ISPC, or TIE MSBY ISPC. Interpret these system responses as they are interpreted for the command STAT loop. See the section which outlines BBBB alternatives for the STAT loop command on page 334.

SWCK	Switch system clock from active to standby. (not supported for Option 11) The reference clock source remains unchanged.	dti/pa-5
TRCK aaa	Set clock controller tracking to primary, secondary or free run. Where aaa is: <ul style="list-style-type: none">• PCK = track primary clock• SCLK = track secondary clock• FRUN = free run mode Track primary clock (PCK) or secondary clock (SCLK) as the reference clock or go to free run (FRUN) mode.	dti/pa-5

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LD 61: Message Waiting Lamps Reset

The Message Waiting Lamps Reset (MWL) program can be invoked automatically by the system as part of the daily routines or manually from an input device. It is used to deactivate all active Message Waiting lamps on user stations and reset the associated status in the system.

This program cannot be applied to digital sets.

When LD 61 is loaded manually, 'G' must be entered to initiate the task.

G command

Starts resetting the trouble status on all Message Waiting lamps. The program does not reset lamp status unless all message center sets are out-of-service (i.e., message center is closed and attendants are in Night Service).

Before running this program, all Message Center (MC) telephones must be taken out-of-service by "make telephone busy" and if attendants are set up to handle message calls, they must be in night mode.

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LD 62: 1.5 Mb/s Remote Peripheral Equipment Local End Diagnostic

This program is loaded manually to test the local equipment associated with a particular carrier going to a remote site.

Note: Program 62 is not supported on Option 11 systems.

When to use LD 62

It is assumed that either:

- a manually requested or automatic test using LD 33 has indicated a fault which may be due to a failure of either local or remote equipment by one of the following messages: RPD202, RPD230, RPD232, RPD240, RPD250.
- a carrier has been disabled automatically and RPD211, RPD214 or RPD215 was printed.

This program is used to determine whether the fault is at the local Meridian 1/Meridian SL-1 site. It is necessary to disable the carrier to be tested before performing the local loop around test.

If a local end fault is detected and cleared, a complete test using LD 33 should then be done.

The program operates on one loop, which must be defined via the DFLP command. If a command is issued when no loop number has been specified, the response LOOP? will be output.

Basic commands

DFLP loop	Define RPE loop
DISC c l	Disable carrier c on loop l
DISI c	Disable carrier c once it is idle
END	Terminate active command
ENLC c	Enable carrier c
LFLT	List speech timeslots that failed LOCL test
LOCL c	Perform loop around test on carrier c
LOCL c ALL	Loop around test for all speech timeslots on carrier c
LPBK c	Close loop back relay on carrier c
SCAR	Switch primary carriers
STAT	Get status of carrier specified by DISI
STAT CAR loop	Get status of all carriers on loop
UNLP c	Open loop back relay on carrier c

Alphabetical list of commands

Command	Description	Pack/Rel								
DFLP loop	Define RPE loop. Defines the loop for the following commands. The specified loop must be an enabled RPE loop.	basic-1								
DISC c l	Disable carrier c on loop l. Must be the current secondary carrier. Any calls using this carrier will be disconnected.	basic-1								
DISI c	Disable carrier c once it is idle. The number of channels still busy on the carrier may be checked using the STAT command.	basic-1								
END	Terminate active command. If no command is in progress, the active DISI command is canceled.	basic-1								
ENLC c	Enable carrier c. If the operation is successful, OK is output.	basic-1								
LFLT	List speech timeslots that failed LOCL test. If no channels failed or if no test has been performed, the response is NONE.	basic-1								
LOCL c	Perform loop around test on carrier c. Carrier c must be disabled when the command is given. The command tests the local equipment associated with the carrier, plus the continuity of the 10 speech timeslots which are always carried by this carrier (see below). If all tests pass, response is OK. The carrier is left in the "manually disabled" state. Speech timeslots carried by each carrier: <table><tr><th>Carrier</th><th>Timeslots</th></tr><tr><td>primary</td><td>4, 5, 10, 11, 20, 21, 26, 27, 28, 29</td></tr><tr><td>0</td><td>6, 7, 12, 13, 14, 15, 22, 23, 30, 31</td></tr><tr><td>1</td><td>2, 3, 8, 9, 16, 17, 18, 19, 24, 25</td></tr></table>	Carrier	Timeslots	primary	4, 5, 10, 11, 20, 21, 26, 27, 28, 29	0	6, 7, 12, 13, 14, 15, 22, 23, 30, 31	1	2, 3, 8, 9, 16, 17, 18, 19, 24, 25	basic-1
Carrier	Timeslots									
primary	4, 5, 10, 11, 20, 21, 26, 27, 28, 29									
0	6, 7, 12, 13, 14, 15, 22, 23, 30, 31									
1	2, 3, 8, 9, 16, 17, 18, 19, 24, 25									

LD 62

LOCL c ALL	<p>Loop around test for all speech timeslots on carrier c.</p> <p>Similar to LOCL command, except that all 20 speech timeslots plus the signaling channel will be tested, provided the channels are not being used by active calls.</p> <p>Execution of this command will cause temporary disruption of all active calls on the loop. The command should be used only when LOCL command tests OK without the ALL option and a fault is still indicated by a complete test using LD 33.</p> <p>Response will include:</p> <p>x SLOTS TESTED, giving the number of speech channels actually tested (maximum 20)</p>	basic-1
LPBK c	<p>Close loop back relay on carrier c. Carrier c must be disabled. The relay remains closed until an ENLC or UNLP command is given.</p>	basic-1
SCAR	<p>Switch primary carriers.</p> <p>This command is allowed only if both the current secondary carrier is enabled, and no faults exist on the current secondary carrier which would reduce the number of working speech channels if it were to become the primary carrier.</p>	basic-1
STAT	<p>Get status of carrier specified by DISI. If no DISI request is active, error message RPL022 is output.</p>	basic-1
STAT CAR loop	<p>Get status of all carriers on specified loop. Response will be one or more of:</p> <ol style="list-style-type: none">1. PRIME = carrier is currently the primary one2. DSBL = carrier is disabled3. LPBK = loop back relay is closed4. x BUSY5. y DSBL <p>The values x and y indicate the number of busy channels and number of channels having continuity failure from the most recent tests in LD 33. The LOCL command does not change the number of disabled channels.</p>	basic-1
UNLP c	<p>Open loop back relay on carrier c.</p>	basic-1

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LD 66: Conversion

Conversion programs are used to convert to a new version of software. The procedure used for this process depends on the versions of software involved.

Refer to the *Software Conversion* NTP and Controlled Release Bulletins (provided with new software).

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LD 75: Digital Trunk Maintenance

This program lets you test digital channels, bring a digital (IDA) link into service or take a link out-of-service.

All Overlay 75 commands may be used on Option 11 systems by substituting card number for loop number.

Basic commands

CDSP	Clears the maintenance display
CMIN ALL	Clears minor alarm for all customers
CMIN c	Clears a minor alarm for customer c
DIS DDCS loop	Disables DDCS loop
DIS DDSL n	Disables DDSL n
DIS DTCS loop	Disables DTCS loop
DIS DTRC l c	Disables real channel c on loop l
DIS DTSL n	Disables DTSL n
DIS DTVC l c	Disables virtual channel c on loop l
DIS LSSL n	Disables Low Speed Signaling Link n for APNSS
DIS PRI2 loop	Disables PRI2 loop
DISI DDCS loop	Disables all channels on loop as they become idle
DISI DTCS loop	Disables all channels on loop as they become idle
ENL DDCS loop	Enables DDCS loop
ENL DDSL n	Enables DDSL n
ENL DTCS loop	Enables DTCS loop
ENL DTRC l c	Enables real channel c on loop l
ENL DTSL n	Enables DTSL n
ENL DTVC l c	Enables virtual channel c on loop l
ENL LSSL n	Enables Low Speed Signaling Link n for APNSS
STAT DDCS (loop)	Gives status of all DDCS loops if loop omitted. Gives status of DDCS loop and all channels on loop if loop specified.
STAT DDSL (n)	Gives status of all DDSLs if n omitted. Gives status of DDSL n if n specified.
STAT DTCS (loop)	Gives status of all DTCS loops if loop omitted. Gives status of DTCS loop and all channels on loop if loop specified.
STAT DTRC l c	Gives status of real digital channel c on loop l
STAT DTSL (n)	Gives status of all DTSLs if n omitted. Gives status of DTSL n if n specified.
STAT DTVC l c	Gives status of virtual digital channel c on loop l
STAT LSRC n (x)	Gives status of Real Channel x on Signaling Link n
STAT LSSL n	Gives status of Low Speed Signaling Link n for APNSS
STAT L SVC n (x)	Gives status of Virtual Channel x on Signaling Link n
STAT PRI2 loop	Gives status of PRI2 loop
STRT n	Starts DDSL n

Note: If GEC Plessey Telecommunications (GPT) hardware is used, the mnemonic DTSL is used instead of DDSL and the mnemonic DTCS is used instead of DDCS.

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clears the maintenance display.	dpnss-16
CMIN ALL	Clears minor alarm for all customers.	dpnss-16
CMIN c	Clears a minor alarm for customer c.	dpnss-16
DIS DDCS loop	Disables DDCS loop.	dpnss-16
DIS DDSL n	Disables DDSL n.	dpnss-16
DIS DTCS loop	Disables DTCS loop	dpnss-16
DIS DTRC l c	Disables real channel c on loop l.	dpnss-16
DIS DTSL n	Disables DTSL n.	dpnss-16
DIS DTVC l c	Disables virtual channel c on loop l.	dpnss-16
DIS LSSL n	Disables LSSL n.	dpnss-16
DIS PRI2 loop	Disables PRI2 loop	
DISI DDCS loop	Disables all channels on loop as they become idle. The message "OK DISABLING" is issued and further commands can be entered. DTM055 is issued when all of the channels are disabled.	dpnss-16
DISI DTCS loop	Disables all channels on loop as they become idle.	dpnss-16
ENL DDCS loop	Enables DDCS loop.	dpnss-16
ENL DDSL n	Enables DDSL n.	dpnss-16
ENL DTCS loop	Enables DTCS loop.	dpnss-16
ENL DTRC l c	Enables real channel c on loop l.	dpnss-16
ENL DTSL n	Enables DTSL n.	dpnss-16

LD 75

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ENL DTVC l c	Enables virtual channel c on loop l.	dpnss-16
ENL LSSL n	Enables Low Speed Signaling Link n for APNSS.	dpnss-16
STAT DDCS (loop)	Gives status of all DDCS loops if loop omitted. Gives status of DDCS loop and all channels on loop if loop specified.	dpnss-16
STAT DDSL (n)	Gives status of all DDSLs if n omitted or specified.	dpnss-16
STAT DTCS (loop)	Gives status of all DTCS loops if loop omitted. Gives status of DTCS loop and all channels on loop if loop specified.	dpnss-16
STAT DTRC l c	Gives status of real digital channel c on loop l	dpnss-16
STAT DTSL (n)	Gives status of all DTSLs if n omitted. Gives status of DTSL n if n specified.	dpnss-16
STAT DTVC l c	Gives status of virtual digital channel c on loop l	dpnss-16
STAT LSRC n (x)	Gives status of Real Channel x on Signaling Link n	dpnss-16
STAT LSSL n	Gives status of Low Speed Signaling Link n for APNSS	dpnss-16
STAT LSVC n (x)	Gives status of Virtual Channel x on Signaling Link n	dpnss-16
STAT PRI2 loop	Gives status of PRI2 loop	
STRT n	Starts DDSL n The message "OK, STARTING" is issued and further commands can be entered. DTM301 is issued when the link is successfully started.	dpnss-16

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LD 77: Manual Print

LD 77 is used to print the signals that come from the peripheral packs to the common equipment.

Note: This Overlay is intended for people experienced with the message formats and protocols.

Some loop-level commands are not valid on Option 11 systems, and have been replaced with slot-level commands.

When to use LD 77

LD 77 can be useful in determining which peripheral pack (line or trunk) is causing a system overload in situations in which the CPU cannot narrow the problem to a specific Terminal Number (TN). Once the program is loaded from a tape, the user may request the system to print all the input messages from a specific area of peripheral equipment.

Manual Print can also be used to continuously send frequency combinations by defining the loop and terminal number of the MFE card, busying the channel, setting the read/write bit to write, defining the message and repeatedly sending it. This channel will not be available for regular signaling until the message sending is stopped and the channel is idled.

When a machine is carrying traffic, there will be a large number of valid messages generated from the peripheral equipment. Thus, the program will be most effective for trouble-shooting when:

- there is little system traffic
- message address range is restricted (i.e., looks only at one shelf or loop)

This program has capabilities which are used by the software designers during development activities. The user is protected from accidental access to these commands (and resulting potential service degradation) as a password is required. This password is not available to customers.

LD 77 Output Format

All numerical input/output is in hexadecimal format. The output is in the following format:

<loop> <shelf> <card> <terminal> <message> <time-stamp>

The loop, shelf and card fields identify the circuit pack generating the message.

Abbreviations for LD 77

The fields are defined as follows:

b = bypass bit value

cb = continuity bit

ch = chip on a given SSD Peripheral Signaling pack

g = group

l s c u = TN: loop, shelf, card, unit

ln = link

loop = network loop

m = module

p = page

ps = Peripheral Signaling pack

sh = Multigroup shelf

ts = time slot

v = desired lamp state; 0 = lit, 1 = dark

x = Multigroup bit

Some four-letter commands can be abbreviated to a one-letter command when entered from a TTY (but not an SL-1 telephone). The one-letter command is shown in parentheses after the four-letter mnemonic (e. g., ARPS (F) l s 32 can be entered as F l s 32).

LD 77 Input Format

All input is in decimal form, except message data which is in hexadecimal form. Space and carriage return are automatically done by the overlay when the expected number of digits are input. Therefore the number of input digits must be strictly entered for each input parameter. The number of letters specified in each parameter field dictate the number of hex or decimal digits that must be entered.

For example:

Enter for TN 1 0 2 0:

001 0 02 00

Enter for TN 156 1 15 30:

156 1 15 30

Basic commands

Only "P" commands can be used on superloops. Some of these commands may not be valid on Option 11 systems; for valid Option 11 commands see LD 77 Option 11 commands in this section.

ANWK (B) loop ts	Read/write network card memory
ANWS (C) loop ts	Read/write network card memory (short)
ARPM loop 20	Print contents of timeslots in RPC
ARPM loop ts b s c u	Get contents of timeslot ts, loop
ARPS (F) loop ts	Read Remote Peripheral Switch memory
DENL loop	Get the density of loop
DFTM (T) s c u	Define unit to receive signaling messages
DRTM (N) l s c u	Stop printing messages
N	Stop print
P	Print all messages
P III	Print all messages from specified loop III
P III s	Print all messages from specified shelf III s
P III s cc	Print all messages from specified card III s cc
PRTM (P) III s cc uu	Print messages, as specified III s cc uu
WCTS loop	Print the current unit scan of loop
WMBY l s c u	Write the maintenance bit for the given unit to BUSY
WMUB l s c u	Write the maintenance bit for the given unit to NOT BUSY
XRCL loop	Read contents of RPC control register for loop
XRSH loop	Read and print contents of SHEN register for loop
XRST loop	Read and print contents of STATUS register for loop
XTRP loop	Test remote RPC processor for loop
XTLP loop	Test local RPC processor for loop
XWCS loop xxxx	Writes RPC control/SHEN register for loop

Basic commands (Release 15 & later)

DISC	Call disconnect
DLMP 0/1	Turn on/off lamp audit
DMTN	Monitor input and output SSD messages for 1 to 6 TNs
IMSG	Send input SSD messages from PE to Meridian 1 CPU
KALL	Call set up without specifying timeslots
KALS	Call set up with specifying timeslots
KILLx	Reset one or all TN being monitored
XMSG	Send output SSD messages from Meridian 1 CPU to PE
XMII, XMIO	Send input/output XMI messages between the CPU and superloops

Option 11 commands

DFTD c ch	Define the digital channel to receive subsequent messages
DISC	Call disconnect
DLMP n	For n=0, turn on lamp audit; for n=1, turn off lamp audit
DMTN	Monitor input and output SSD messages for 1 to 6 TNs
DPRT card	Print messages from this digital card
DPRT c ch	Print messages from this digital channel
DRTD card	Stop printing messages from this digital card
DRTD c ch	Stop printing messages from this digital channel
IMSG	Send input SSD messages from XPE to CPU
KALL	Call setup without specifying timeslots
KALS	Call set up specifying timeslots
KILL x	Reset one or all TNs being monitored
P card	Print all messages from the specified card
P c u	Print all messages from the specified unit
XMSG	Send output SSD messages from CPU to XPE

Alphabetical list of commands

Command	Description	Pack/Rel
ANWK (B) loop ts	<p>Read/write network card memory. Access the specified network card memory to read and print one word. The word format is:</p> <p><cb s c u x ln --></p> <p>Where: cb = continuity bit, s = shelf, c = card, u = unit, x = multigroup bit and ln = link</p> <p>You can write in new data. To change the values, rekey the word after the dashes, substituting new values where appropriate.</p>	basic-1
ANWS (C) loop ts	<p>Read/write network card memory (short). Access the specified network card memory (short form) to read and print one word. The multigroup bit and continuity field are not used.</p> <p>The word format is: <s c u ln --></p> <p>Where: s = shelf, c = card, u = unit and ln = link.</p> <p>You can write in new data. To change the values, rekey the word after the dashes, substituting new values where appropriate.</p>	basic-1
ARPM loop 20	Prints contents of 32 timeslots in RPC associated with loop (20 hexadecimal = 32 decimal).	basic-1
ARPM loop ts b s c u	<p>Get contents of timeslot ts, loop.</p> <p>The system prints data in the form "bscu", where b is the current value of the bypass bit in the Remote Peripheral Equipment Controller (RPC) memory (0 or 1) for that shelf, card and unit.</p> <p>The user can enter a new bypass bit for the RPC memory after the dash.</p>	basic-1

ARPS (F) loop ts	<p>Read Remote Peripheral Switch memory.</p> <p>Access the specified Remote Peripheral Switch (RPS) memory to read and print one word.</p> <p>The word format is: <cb s c u --></p> <p>Where: cb = continuity bit, s = shelf, c = card and u = unit.</p> <p>You can write in new data. To change the values, rekey the word after the dashes, substituting new values where appropriate.</p>	basic-1
DENL loop	Get the density of loop.	basic-1
DFTD c ch	Define the digital channel to receive subsequent messages. (Option 11)	
DFTM (T) s c u	Define unit to receive signaling messages.	basic-1
DISC	<p>Call disconnect. Format is:</p> <p>DISC</p> <p>TN1 lll s cc uu</p> <p>TN2 lll s cc uu</p> <p>This command disconnects the call specified by the TNs. A scan of the connection memory is done prior to disconnecting the call, if no timeslot can be found for the specified TN, nothing is done. TN1 and TN2 are prompted by the program.</p>	xpe-15
DLMP 0/1	<p>Turn on/off lamp audit. Format is:</p> <ul style="list-style-type: none">• DLMP 0 = turn on lamp audit• DLMP 1 = turn off lamp audit	xpe-15

DMTN	<p>Monitor input and output SSD messages for 1 to 6 TNs. This command is used to monitor all SSD messages for the specified TN. TN is automatically prompted by the program. Up to 6 TNs can be monitored at the same time.</p> <p>Enter the DLPM and DMTN commands as follows:</p> <p>DLMP 2 DMTN TNx lll s cc uu</p> <p>Where: x = (1-6), TN index</p> <p>The output format is: OSSD111 TN MSG TIME</p> <p>Where:</p> <ul style="list-style-type: none"> • OSSD111 = header • TN = packed TN • MSG = SSD message content • TIME = real time clock before output when work scheduler gets the input message 	xpe-15
DPRT c ch	Print messages from this digital channel (Option 11).	xpe-15
DPRT card	Print messages from this digital card. (Option 11).	xpe-15
DRTD c ch	Stop printing messages from this digital channel. (Option 11).	xpe-15
DRTD card	Stop printing messages from this digital card (Option 11).	xpe-15
DRTM (N) l s c u	<p>Stop printing messages from the loop, shelf, card and unit. Only loop and shelf numbers are required.</p>	basic-1

IMSG Send input SSD messages from PE to Meridian 1 CPU. This command is used to simulate incoming SSD message from the peripheral equipment. The specified TN must be equipped. xpe-15

Format is:

```
IMSG
TN lll s cc uu
NUMBER MESSAGES mm
# TIMES TO SEND hhh
MSG DATA xxxx xxxx xxxx xxxx. . .
```

Where:

- mm = number of SSD messages (1-10) to be sent
- hhh = number of times (1-999) to simulate the SSD input message
- xxxx = SSD message content. Number of message contents depends on input of mm

TN, NUMBER MESSAGES, # TIMES TO SEND, and MSG DATA are prompted by the program.

KALL Call set up without specifying timeslots. xpe-15

This command is used to set up a simple call (intra or inter-group). The system finds an available timeslot for the specified TNs. The specified TN must be equipped, enabled and idle.

Format is:

```
KALL
TN1 lll s cc uu,
TN 1 s c u (Option 11)
Loop 0 00 CH for Digital Trunk Cards.
TN2 lll s cc uu,
TN 1 s c u (Option 11)
Loop 0 00 CH for Digital Trunk Cards.
TN1 and TN2 are automatically prompted by the program.
```

If AUDIT is running, call(s) are disconnected, and AUD17, AUD18, AUD19, and/or AUD31, AUD32 is printed.

Call setup command simply finds the available timeslots and sets up the connection memory and/or junctor memory. BUG105, BUG330 may be printed if illegal sequences are carried out.

These commands are designed for lab use only, and should be used cautiously in a live switch.

KALS	<p>Call set up with specifying timeslots.</p> <p>This command will set up a call specified by the input TNs and the timeslots if both TNs are equipped, enable and idle. The specified timeslots will be used if they are idle, if the specified timeslot are occupied, then the call will not be set up. See Notes with the KALL command.</p> <p>Format:</p> <pre> KALS TN1 lll s cc uu, TN 1 s c u, (Option 11) Loop 0 00 CH for Digital Trunk Cards. TN2 lll s cc uu, TN 1 s c u, (Option 11) Loop 0 00 CH for Digital Trunk Cards. TIMESLOTS ts1 ts2 </pre> <p>Where:</p> <ul style="list-style-type: none"> • ts1 = specified timeslot of the TN1 • ts2 = specified timeslot of the TN2 • TN1, TN2, and TIMESLOTS are prompted by the program. 	xpe-15
KILLx	Reset one or all TN being monitored. Where: x = the TN index number (1-6) entered with the DMTN command. Enter 7 to reset all the output monitored TNs.	xpe-15
N	Stop print.	basic-1
P	Print all messages.	basic-1
P card	Print all messages from specified card. (Option 11)	basic-15
P c u	Print all messages from specified unit. (Option 11)	basic-15
P III	Print all messages from specified loop. Enter the exact number of digits. Example: for loop 4, enter 004	basic-1
P III s	Print all messages from specified shelf. Enter the exact number of digits. Example: for loop 4, enter 004.	basic-1
P III s cc	Print all messages from specified card. Enter the exact number of digits. Example: for loop 4, enter 004.	basic-1

LD 77

PRTM (P) lll s cc uu	Print messages, as specified. Only loop and shelf numbers are required. Enter the exact number of digits. (Example: for loop 4, enter 004.)	basic-1
WCTS loop	Print the current unit scan of specified loop. Outputs shelf, card and unit.	basic-1
WMBY l s c u	Write the maintenance bit for the given unit to BUSY.	basic-1
WMUB l s c u	Write the maintenance bit for the given unit to NOT BUSY.	basic-1
XMII, XMIO	<p>Send input/output XMI messages between the CPU and superloops.</p> <p>Send input/output XMI messages to the Peripheral Controller (NT8D01) or Network card (NT8D04). Use XMII for input messages from the Network card (NT8D04) to the CPU. Use XMIO for messages from the CPU to the Network.</p> <p>This command is used to simulate input/output XMI message. It may not be useful in LD 77, a similar command is available in resident debugger.</p>	xpe-15

Format:

```
XMII or XMIO
LOOP lll
NUMBER MESSAGES m
# TIMES TO SEND hhh
MSG DATA
cccc xxxx xxxxxxxxx
cccc xxxx xxxxxxxxx
cccc xxxx xxxxxxxxx
```

Where:

- lll = Loop number
- m = Number of multiple XMI messages (1-6)
- hhh = Number of times to send XMI messages (1-999)
- cccc = Control word; cccc is defined as follows:

```
r   ss  applic   type
- | -- | ----- | ----- |
```

Where:

- **r** = one bit msg ready flag, always sets to
- **ss** = two bit sequence status field. ss may be:
 - a** B.00 : short message
 - b** B.01 : starting a long message (message has 6 or more words of data)
 - c** B.10 : continue a long msg
 - d** B.11 : end of a long msg
- **applic** = six bit value for msg's intended application. appl may be:
 - a** B.000001 : for LD 30
 - b** B.000010 : for LD 32
 - c** B.000011 : for LD 45
 - d** B.000100 : for LD 77
 - e** B.000101 : for XPE parameter download
 - f** B.000110 : for XNET action request
- **type** = seven bit value of message type
- **xxxx** = message data
-

XMSG

Send output SSD messages from Meridian 1 CPU to PE.

xpe-15

This command is used to send output SSD message to the peripheral equipment TN. The specified loop of the TN must be enabled and responding.

Format:

```
XMSG
TN lll s cc uu,
TN l s c u, for Option 11 only
Loop 0 00 CH for Digital Trunk Cards.
NUMBER MESSAGES mm
# TIMES TO SEND hhh
MSG DATA xxxx xxxx xxxx. . . .
```

Where:

- **mm** = number of SSD messages to be sent (1-10)
- **hhh** = number of times to output SSD message (1-999)
- **xxxx** = SSD message content. Number of message contents depends on the value of mm
- **TN, NUMBER MESSAGES, # TIMES TO SEND, and MSG DATA** are prompted by the program.

LD 77

XRCL loop	Read contents of RPC control register.	basic-1
XRSH loop	Read and print contents of SHEN register.	basic-1
XRST loop	Read and print contents of STATUS register.	basic-1
XTLP loop	Test local RPC processor for loop.	basic-1
XTRP loop	Test remote RPC processor for loop.	basic-1
XWCS loop xxxx	Writes RPC control/SHEN register for loop with data xxxx in hexadecimal format.	basic-1

Issued:	June 1999
Status:	Standard
X11 Release:	24

LD 80: Call Trace

LD 80 provides a means of tracing a call by looking at a snap shot of the transient data (such as call register contents) associated with the call. The trace commands operate only when this Overlay is active. If LD 80 is aborted (****), the trace functions stop. Note that when using the enhanced trace commands, the Overlay will not automatically abort (according to the defined time-out period) if calls are being traced.

When a system initialization occurs, all trace commands are removed, and the trace operation is stopped.

For Network Call Trace see NCT messages.

X11 Release 19 and later include Enhanced Trace Commands. The enhanced trace function requires Multi-User Login functionality (package 242) to be enabled in LD 17. The enhanced commands are: DALL, DIST, ENTC, ENTD, GOTR, FITR, and STPT. These commands interact with each other only. They do not affect pre-Release 19 commands.

The enhanced trace commands can be disabled through a maintenance telephone by dialing the following: nn + 9913 + x + yy

Where:

- nn = customer SPRE access code
- 9913 = feature code to display for message display control
- x = action code (0 to deactivate)
- yy = message monitor code (02 for enhanced trace messages)

A second dial tone indicate that the command was successful. Overflow tone is heard if the command is entered incorrectly. Once this command has been entered, a user entering FITR from the TTY will receive the period (.) prompt.

Some loop-level commands are not valid on Option 11 systems, and have been replaced with slot-level commands.

When to use LD 80

There are three basic commands:

- TRAT for tracing attendant consoles
- TRAC for tracing sets and trunks
- TRAD for tracing calls through Computer PBX Interface (CPI), Digital Trunk Interface (DTI), Primary Rate Interface, or Digital Link Interface (DLI) loops.

The TRAC command can be used to print the tone detector TN if a tone detector is used at the time of the call trace.

Generic X11 enables the printing of auxiliary data related to a call. The auxiliary data consists of information associated with the NARS/BARS/CDP features, if equipped, and the Ring Again (RGA) feature. This additional data can be retrieved by appending DEV to any of the TRAC commands.

Example: TRAC L S C U DEV

Note: BRI DNs can be traced with the TRAC C DN command. For TRAC L S C U, enter U = DSL0 to DSL7 for Digital Subscriber Loops.

With X11 Release 23, when Music and Recorded Announcement Broadcast trunks are traced, the following information is printed out:

- indication that the trunk is broadcasting
- the number of callers connected to the trunk

When a caller connected to a broadcasting trunk is traced, the existing trace information is printed out as well as an indication that the trunk is broadcasting.

Originating and terminating information

The Call Trace originating and terminating party information depends on the types of telephone, console or trunk as shown below.

Single line telephones:

```
ORIG l s c u  cust dn 500
TERM l s c u  cust dn 500
```

Multi-line telephones:

```
ORIG l s c u  key# keytype  cust dn settype
TERM l s c u  key# keytype  cust dn settype
```

Attendant consoles

```
ORIG l s c u  cust att# lpk#  ATTN consoletype
TERM l s c u  cust att# lpk#  ATTN consoletype
```

Trunks:

```
ORIG l s c u  rtyp RMBR rrr mmm
TERM l s c u  rtyp RMBR rrr mmm
```

Where:

l s c u = TN

consoletype = console type (ATT, 1250, 2250)

cust = customer number

dn = directory number

key# = multi-line telephone key number

keytype = multi-line telephone key type (SCR, MCR, HOT, etc.)

lpk# = console loop key number

rrr mm = trunk route and member number

rtyp = trunk route type (TIE, CO, FX, etc.)

settype = multi-line telephone type (SL1, 2008, 2317, etc.)

Example 1

Trace a call placed to a 500-type set

Configuration: active call from key 0 on an M2008, to 500-type telephone

Customer number: 06

Originator:

telephone type: M2008

TN: 004 0 05 00

DN: 5100 on SCR key 0

Terminator:

telephone type: 500

TN: 008 0 03 06

DN: 2121

Trace command:

TRAC 4 0 5 0 (l s c u), or

TRAC 6 5100 (customer and DN)

Output:

```
ACTIVE  TN    004  0  05  00
ORIG    04 0  0  05  00      6  SCR 0   5100   2008
TERM    008 0  03  06      6   2121   500
DIAL DN 2121

MAIN PM   ESTD
TALKSLOT  ORIG 22      TERM 22
QUEUE NONE
```

Example 2**Trace an outgoing ISDN call**

Configuration: outgoing call from key 0 on an M2317, to 500-type telephone
Customer number: 05

Originator:

telephone type: M2317
TN: 016 0 02 00
DN: 6050 on SCR key 0

Terminator:

Dialed DN: 7873107
Outgoing PRI TIE trunk: loop 018 channel 16; route 24 member 12

Trace command:

TRAC 5 6050 (customer, DN), or
TRAC 16 0 2 0 (l s c u)

Output:

```
ACTIVE  TN      016  0  02  00
ORIG      016  0  02  00      5  SCR 0    6050    2317
TERM      018  16          TIE  RMBR  24  12
DIAL DN   7873107
MAIN PM   ESTD
TALKSLOT  ORIG  13      TERM  13
QUEUE    NONE
---- ISDN PRA CALL (TERM) ----
CAL REF # = 16
BEARER CAP = VOICE
CALL STATE = 10      ACTIVE
CALLING NO = 4376050
CALLED NO  = 7873107
```

Example 3

Enhanced Trace command output

The enhanced call trace output includes a time stamp that appears on the first line of the output.

The TN or digital trunk prints out only when there has been a change to the call register. The TN or trunk is printed only once.

Sample output:

.14:00:02 12/25/1992

KEY 0 MCR MARP ACTIVE TN 001 0 02 01

ORIG 001 02 01 0 SCR MARP 1 5011 SL1

TERM 001 0 02 00 0 MCR MARP 1 5006 SL1

DIAL DN 5006

MAIN_PM ESTD

TALKSLOT ORIG 19 TERM 21

QUEU NONE

KEY 1 TRN IDLE

KEY 2 AO3 IDLE

.
.
.

KEY 8 RND

KEY 9 RLS

.14:00:04 12/25/1992

IDLE TN 015 04

Alphabetical list of Call Trace outputs

This section provides definitions of the data output by the various call trace commands.

With X11 Release 19 and later, a time stamp is added to Call Trace output. The following information is added below the time stamp as necessary.

- A digital telephone with no active call register shows:
IDLE TN l s c u
 - A locked out telephone or digital trunk shows:
LOCKOUT TN l s c u (or l ch)
 - A disabled telephone or digital trunk shows:
DSBL TN l s c u (or l ch)
 - A telephone or digital trunk that is in maintenance busy state shows:
MSBY TN l s c u (or l ch)
MSBY TN l s c u (or l ch) MARP shows if the TN is a MARP TN
- 1 ACTIVE — the call/key is active
 - 2 AUX_NARS — Network Automatic Route Selection (NARS) data to follow
 - 3 AUX_PM — auxiliary progress mark may be any of the following depending on the MAIN_PM:
 - a ABSORBING = performing digit manipulation on the call
 - b AWAIT ANI = waiting for Automatic Number Identification information
 - c AWAITREPLY = CPU is waiting for a response during a dial sequence
 - d BSYG = busy tone to originator
 - e CDR-CALLRECORD = CPU is outputting a CDR record
 - f CDR-TIMING = CPU is computing a CDR record
 - g COMPLETE = dialing is complete
 - h DNTRANS = DN translation to TN in progress
 - i FAREND-OFF = ?

- j** NARS = call is a network call
 - k** NOOUTPUTS = outputting complete, originator receiving ringback
 - l** OUTPUTSING = outputting digits related to the call
 - m** OVLV = resources not available, returning overflow to originator
 - n** PAUSING = timed pause in a trunk call dialing sequence
 - o** SPEEDCALL = performing speed call
 - p** TEMPPATH = software timing, occurs when outputting digits on trunks
 - q** TOLLCHECK = checking access restrictions for the call
 - r** USCR = User Selectable Call Redirection programming, receiving dial tone
 - s** USCR_DIAL = USCR programming
-
- 4** AUX_RGAT_PM — Ring Again over trunk information
 - 5** BEARER CAP — bearer capability, such as voice, 64K clear, 64K restricted and 56K
 - 6** BUSY — unit or DN is busy
 - 7** CALL REF # — PRI call reference number assigned by the system
 - 8** CALL STATE — specifies the PRI call as active or inactive
 - 9** CALLED NO — PRI dialed number
 - 10** CALLING NO — PRI home location code and DN of originating party
 - 11** CONF — conference call

- 12 COS_ORIG, COS_TERM — class of service restrictions for originating and terminating party. Possible values are:
 - a UNR = Unrestricted
 - b TLD = Toll Denied
 - c SRE = Semi-restricted
 - d FRE = Fully Restricted
 - e FR1 = Fully Restricted class 1
 - f FR2 = Fully Restricted class 2
 - g CUN = Conditionally Unrestricted
 - h CTD = Conditionally Toll Denied
- 13 CSD — Confree Selectable Display Key
- 14 DARK_CONSOLE — the call is being temporarily released by a console. Also outputs three types of recall:
 - a RLSED = console released the call is getting recall
 - b FLASH = Flash recall
 - c CAMP = Camp-On recall
- 15 DIAL DN— the dialed number
- 16 DIAL xxx yy TTR zz — TDS on loop xxx and timeslot yy connected to Digitone Receiver timeslot zz
- 17 DG_MAN xxx FCA_INDEX xxx TOD x — Digit Manipulation Index, Free Area Screening and Time Of Day value
- 18 DIRECT MW_CALL — Message Waiting indication is being given
- 19 DSBL — the unit has been disabled
- 20 DST — console destination information to follow
- 21 EMR100 — ACD emergency conference
- 22 EXP_ROUTE — identifies if an expensive route is being used for an ESN call
- 23 IDLE — TN or key is idle

- 24 HLD — number of calls On-Hold at the console
- 25 HOLD — call is On-Hold
- 26 LOCKOUT — the unit is in lockout state
- 27 LOOP — attendant console LPK key
- 28 MAIN_PM — this is the main progress mark which identifies the state of the call, possible values are listed below: (See also AUX_PM)
 - a BUSY = originator is receiving busy tone
 - b CDR = CPU is processing Call Detail Recording records
 - c DELAY DIAL = CPU is in a timing sequence while establishing a delay dial start trunk call
 - d DIAL = one or more digits have been dialed, system requires more digits
 - e ESTD = call is established between the originating and terminating party
 - f HALFDISC = Trunk with answer supervision has not received a disconnect signal from the far-end during trunk idling
 - g READY = CPU is ready to process a function for the originating TN
 - h REOR = originator is receiving intercept treatment
 - i RING = originator is receiving ringback tone
 - j WAIT = dial tone waiting queue
 - k WINKON = CPU is in a timing sequence while establishing a wink start trunk call
- 29 MARP — indicates the TN is Multiple Appearance Redirection Prime
- 30 MBSY — unit is in maintenance busy state
- 31 NARS_PM — NARS call progress mark
- 32 NEW_RLIST_INDEX NWQ_RLIST_ENTRY — network queue route list index and route list entry
- 33 NCOS_ORIG, NCOS_TERM — Network Class of Service for originating and terminating party

- 34 OHQ/CBQ — call is in the Off-Hook queue or Callback queue
- 35 OSN — On-Site Notification key
- 36 PRIORITY NWQ_EXT_ROUTE — the priority in the queue and extended route queuing
- 37 PTY SLOT — TDS priority timeslot; reserved by the CPU while a user is receiving tones (this timeslot may be required by the CPU to further process the call). Normally PTY SLOT is the same timeslot as SLOT.
- 38 QUEU — a call may be in one of the following CPU timing queues:
 - 128 = 128 ms timing queue
 - 2S = 2 second timing queue
 - CAD = cadence
 - CDR = Call Detail Recording processing queue
 - DIAL = dialing queue
 - IDLE = idle queue
 - NONE = call is not in a timing queue
 - RING = ringing queue
- 39 RCVR xx SET yy — timeslot to the Digitone Receiver (xx) and the telephone (yy)
- 40 RGAT_PM — Ring Again progress mark
- 41 RL_IND xx RL_ENT xx — NARS/BARS route list index and entry number
- 42 SRC — console source information to follow
- 43 SBSY — unit is software busy
- 44 SLOT — the timeslot used by the originator and terminator
- 45 TALKSLOT — identifies the timeslot and junctor (if applicable) used by the originator and terminator
- 46 TDTN — Tone Digit Switch loop and timeslot
- 47 TERM — originating party information, identifies the TN or DN where the call terminates, output depends on type of telephone or console

- 48 TGAR_ORIG, TGAR_TERM — Trunk Group Access Restriction for originating and terminating party
- 49 TTR = Digitone Receiver TN
-

Basic commands

DALL	Disable all enhanced trace commands.
DIST n	Disable the enhanced trace operation.
ENTC l s c u t	Enable the enhanced trace command for a TN.
ENTD l c h t	Enable the enhanced trace command for a digital trunk.
FITR	Get information about the enhanced trace function.
GOTR	Begin enhanced trace commands. This command starts the trace operation specified with the ENTC and ENTD commands.
STPT	Stop the enhanced trace command.
TRAC c acod	List route number, type and status of each trunk for customer c
TRAC c dn	Trace calls for customer c Directory Number or Local Steering Code dn
TRAC c r m	Trace calls, customer c, route r, member m
TRAC l s c DSLx	Trace calls on Digital Subscriber Loop x (0-7)
TRAC l s c u	Trace calls associated with this unit
TRAC l s c u k	Trace calls associated with key k on specified unit
TRAC x yyyy	Trace using customer number as DN
TRAC xx...xx DEV	Print auxiliary data
TRAC zzzz	Trace using TN of the set to be traced
TRAD loop ch	Trace DTI or DLI calls, channel ch of loop
TRAT c a	Trace calls, attendant a of customer c
TRAT c a k	Trace calls associated with key k of attendant console a for customer c
TRAT l s c u	Trace attendant calls, this unit
TRAT l s c u k	Trace attendant calls on key k
TRAT xx...xx DEV	Print auxiliary data

Option 11 commands

On an Option 11 system, some loop-level commands are replaced with slot-level commands. Valid commands for these systems are shown here:

TRAC c acod	List route number, type and status of each trunk under customer c
TRAC c dn	Trace calls for customer c Directory Number or Local Steering Code dn
TRAC c r m	Trace calls for customer c, route r, member m
TRAD c ch	Trace digital calls, channel ch of card c
TRAD loop ch	Trace DTI calls, channel ch of loop
TRAK c u	Trace calls associated with this unit
TRAK c u k	Trace calls associated with key k on the specified unit
TRAO c u	Trace attendant calls, this unit
TRAO c u k	Trace attendant calls on key k of unit
TRAO xx...xx DEV	Print auxiliary data
TRAT c a	Trace calls for attendant a of customer c
TRAT c a k	Trace calls associated with key k of attendant console a for customer c

Alphabetical list of commands

Command	Description	Pack/Rel
DALL	Disable all enhanced trace commands. This command disables all trace commands enabled with ENTC or ENT D command. You must stop the trace with the STPT command before disabling all the commands with DALL.	basic-19
DIST n	Disable the enhanced trace operation. This command disables the trace command enabled with ENTC or ENT D command. This command is used once a trace command is started then stopped. Where: n = the entry number (as seen with the FITR command)	basic-19
ENTC l s c u t	Enable the enhanced trace command for a TN. This command enables the trace capability for the TN specified. Note that this command does not start the trace immediately. Use the GOTR command to begin the trace operation. Where: l = loop, s = shelf, c = card, u = unit and t = the length of time the trace command operates. The format for the trace command duration (t) is HHMM, where HH = hours (0-23) and MM = minutes (0-59). For example, for a duration of 5 minutes, t = 0005; for 1 hour, t = 0100 The time duration must be at least 1 minute, and no more than 23 hours.	basic-19
ENTD l ch t	Enable the enhanced trace command for a digital trunk. This command enables the trace capability for the TN specified. Note that this command does not start the trace immediately. Use the GOTR command to begin the trace operation. Where: l = loop, s = shelf, c = card, u = unit and t = the length of time the trace command operates. The format for the trace command duration (t) is HHMM, where HH = hours (0-23) and MM = minutes (0-59). For example, for a duration of 5 minutes, t = 0005; for 1 hour, t = 0100. The time duration must be at least 1 minute, and no more than 23 hours.	basic-19

FITR Get information about the enhanced trace function. This command queries the TNs or Digital trunks being traced with the ENTC and ENTD commands. basic-19

The output is shown as follows:

ENTRY	TN or TRUNK	TIME	STATUS
-------	-------------	------	--------

For example:

1	01 0 01 01	0030	OFF
2	015 04	1200	OFF

GOTR Begin enhanced trace commands. This command starts the trace operation specified with the ENTC and ENTD commands. basic-19

STPT Stop the enhanced trace command. basic-19

This command stops the enhanced trace operation specified with the ENTC and ENTD commands. This can be used at any time during the trace operation. This does not disable the commands; they can be restarted with the GOTR command. When they are restarted, the duration timer is reset.

For example: the timer is set at 30 minutes, but the trace is stopped after 2 minutes. When the trace is restarted (GOTR) the timer is set to 30 minutes.

TRAC c acod List route number, type and status of each trunk for customer c. basic-1

TRAC c dn Trace calls for customer c Directory Number or Local Steering Code dn. basic-1

TRAC c dn Trace calls, this dn of customer c. basic-1

TRAC c r m Trace calls, customer c, route r, member m. basic-1

TRAC l s c DSLx Trace calls on Digital Subscriber Loop x (0-7). bri-18

TRAC l s c u Trace calls associated with this unit. If a trace is performed on a DTR, an error message is output. basic-1

TRAC l s c u k Trace call associated with key k on specified unit. basic-1

TRAC x yyyy Trace using customer number as DN. nxcc-22

Where : x = customer number of the set to be traced and
yyyy = DN of the key to be traced.

TRAC xx...xx DEV	Print the auxiliary data related to the call for Network Alternate Route Selection (NARS), Basic Alternate Route Selection (BARS), Coordinated Dialing Plan (CDP) or Ring Again (RGA), where equipped, as well as the normal data for command xx...xx. Command xx...xx can be any of the TRAC commands. When TYP E is output, E = extended route (not expensive).	nxcc-22
TRAC zzzz	Trace using TN of the set to be traced. Where : zzzz = TN of the set to be traced.	nxcc-22
TRAD loop ch	Trace DTI or DLI calls, channel ch of specified loop.	basic-1
TRAD c ch	Trace digital calls, channel ch of card c. (Option 11)	
TRAK c u	Trace calls associated with this unit. (Option 11)	basic-1
TRAK c u k	Trace calls associated with key k on the specified unit. (Option 11)	basic-1
TRAO c u	Trace attendant calls, this unit. (Option 11)	basic-1
TRAO c u k	Trace attendant calls on key k of unit. (Option 11)	basic-1
TRAO xx...xx DEV	Print auxiliary data. (Option 11)	basic-1
TRAT c a	Trace calls for customer c, attendant a.	basic-1
TRAT c a k	Trace calls associated with key k of attendant console a for customer c.	basic-1
TRAT l s c u	Trace attendant calls, this unit.	basic-1
TRAT l s c u k	Trace attendant calls on key k.	basic-1
TRAT xx...xx DEV		basic-1

Print auxiliary data.

Print the auxiliary data related to the call for Network Alternate Route Selection (NARS), Basic Alternate Route Selection (BARS), Coordinated Dialing Plan (CDP) or Ring Again (RGA), where equipped, as well as the normal data for command xx...xx. Command xx...xx can be one of the TRAT commands.

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X11 Release:	24

LD 92: Automatic Trunk Maintenance

The Automatic Trunk Maintenance (ATM) program tests TIE, CSA, WATS, FEX, DID, and COT trunk routes automatically each day at times scheduled in the ATM schedule block. This program also allows the manual testing of trunks.

Some loop-level commands are not valid on Option 11 systems, and have been replaced with card-level commands.

The ATMC command is not supported for 2.0 Mb/s DTI due to the absence of tone detectors for Option 11 in IPE.

Basic commands

On Option 11 systems, some loop-level commands are replaced with card-level commands.

ATMC l ch	Test DTI channel ch on loop
ATMC l ch l ch	Test specified DTI channel, with reference trunk
ATMR c r	Test customer c route r
ATMR c r m	Test customer c route r with reference trunk member m
ATMU c u	Test specified unit. (Option 11)
ATMU c u c u	Test specified unit, with reference trunk. (Option 11)
ATMU l s c u	Test specified unit
ATMU l s c u l s c u	Test specified unit, with reference trunk
CLRR c r	Clear "ring no answer" count on route r for customer c
CLRU c u	Clear "ring no answer" count on specified trunk unit. (Option 11)
CLRU l s c u	Clear "ring no answer" count on specified trunk unit
CMAJ	Clear major alarm and reset power fail transfer
END	Terminate test in progress
PRTR c r	Get "ring no answer" count for all members on route r for customer c.
PRTU c u	Get "ring no answer" count on specified unit. (Option 11)
PRTU l s c u	Get "ring no answer" count on specified unit.
PSCD l ch	Print the current value of the SPC Calls to the Data Interface Counter
RSCD l ch (n)	Restart the Semi Permanent Connections (SPC) calls to Data Interface counter
SSCD l ch	Stop the SPC calls to Data Interface to be performed

Alphabetical list of commands

Command	Description	Pack/Rel
ATMC l ch	Test DTI channel ch on loop.	atm-7
ATMC l ch l ch	Test the specified DTI channel (loop and channel of the first field) with the reference trunk (loop and channel of the second field).	atm-7
ATMR c r	Test route r of customer c. Accepts ADM Route numbers in release 12 and later. When an ADM Route is entered, member numbers cannot be entered.	atm-7
ATMR c r m	Test route r of customer c with reference trunk member m.	atm-7
ATMU c u	Test specified unit. (Option 11)	atm-15
ATMU c u c u	Test specified unit, with reference trunk. (Option 11)	atm-15
ATMU l s c u	Test specified unit. If the unit specified is an ADM trunk unit, no reference information can be entered.	atm-7
ATMU l s c u l s c u	Test the specified unit (l s c u of the first field) using the reference trunk (l s c u of the second field). If the unit specified is an ADM trunk unit, no reference information (l s c u) can be entered.	atm-7
CLRR c r	Clear "ring no answer" count on route r for customer c. Clears the "ring no answer" count for every trunk member in the ADM Route specified.	atm-7
CLRU c u	Clear "ring no answer" count on specified trunk unit. (Option 11)	atm-15
CLRU l s c u	Clear "ring no answer" count on specified trunk unit.	atm-7
CMAJ	Clear major alarm, reset power fail transfer and clear power fault alarm.	atm-7
END	Terminate test in progress. This command can be entered at any time.	atm-7

PRTR c r	Get "ring no answer" count for all members on route r for customer c.	atm-7
PRTU c u	Get "ring no answer" count on specified unit. (Option 11)	atm-15
PRTU l s c u	Get "ring no answer" count on specified unit.	atm-7
PSCD l ch	Print the current value of the SPC Calls to the Data Interface Counter.	ispc-22
RSCD l ch (n)	<p>Restart the Semi Permanent Connections (SPC) calls to Data Interface counter</p> <p>Where: l = Phantom loop of an SPC link and ch = Phantom TN of an SPC link.</p> <p>The RSCD command resets the current counter used to identify the number of calls performed by the system to the Data Interface when an SPC link is configured to convey D-channel signaling and the SPC link is identified as being the SLAVE side.</p> <p>The optional parameter (n) is used to identify the maximum number of calls to the Data Interface before the process automatically stops. When no value has been provided to the parameter (n), up to 40 calls to the Data Interface are performed before this process is automatically stopped.</p> <p>When the value provided to the parameter (n) is zero, it has to stop the process which automatically calls the associated Data Interface.</p>	ispc-22
SSCD l ch	Stop the SPC calls to Data Interface to be performed.	ispc-22

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LD 96: D-channel Diagnostic

LD 96 is used to test and maintain D-channel links and the QPC757 or NT6D11AB D-channel Interface (DCHI) card.

In Release 18, D-channels can also reside on Multi-purpose Serial Data Link (MSDL) cards. A new set of LD 96 commands are provided to support MSDL cards. The MSDL commands listed in LD 48 can also be used in LD 96.

Note: In Release 18, all commands accept "DCH" instead of "DCHI." For example, use ENL DCH x rather than ENL DCHI x.

Monitoring

D-channel message monitoring is used to analyze the Layer 3 protocol messages traveling between the near and far-end D-channels.

Up to and including Release 16, message monitoring can be performed only on a per D-channel basis using LD 96. That is, once the message monitor is turned on, all messages are output for that D-channel. The messages output might be excessive.

Release 17 provides additional commands in LD 96 that allows selective message monitoring based on

- the D-channel
- the B- or ISL channel
- the message types for a specific feature
- any specific message

The following sections describe the various command formats.

Note 1: During high traffic some of the monitored messages may be lost.

Note 2: For the D-channel monitor messages to be displayed, the system terminal must have USER defined as MTC in LD 17 (Release 17 and later).

D-channels

All message types, features and channels associated with a particular D-channel can be monitored. Up to and including Release 16, only one D-channel can be monitored for outgoing messages and one for incoming messages. Release 17 and later allows the monitoring of multiple D-channels for both incoming and outgoing messages.

The LD 96 commands to enable or disable monitoring of all incoming or outgoing messages on a D-channel are:

ENL MSGI x—enable monitoring of incoming messages

ENL MSGO x—enable monitoring of outgoing messages

DIS MSGI x—disable monitoring of incoming messages

DIS MSGO x—disable monitoring of outgoing messages

Where x is the DCHI or MSDL port address (I/O address). For example, to enable monitoring of incoming messages on D-channel 5, enter:

ENL MSGI 5

The output includes all messages, features and channels for D-channel 5.

B-channels and ISL channels

You can monitor up to 5 ISL or B-channels, for each direction. If there is no specific channel selected, all channels are monitored. The commands follow:

For B-channels on all systems except Option 11:

ENL MSGI x CH loop channel
ENL MSGO x CH loop channel
DIS MSGI x CH loop channel
DIS MSGO x CH loop channel

For B-channels on Option 11 systems:

ENL MSGI x CH card channel
ENL MSGO x CH card channel
DIS MSGI x CH card channel
DIS MSGO x CH card channel

For ISL channels on all systems except Option 11:

ENL MSGI x CH l s c u
ENL MSGO x CH l s c u
DIS MSGI x CH l s c u
DIS MSGO x CH l s c u

For ISL channels on Option 11 systems:

ENL MSGI x CH c u
ENL MSGO x CH c u
DIS MSGI x CH c u
DIS MSGO x CH c u

Where:

ENL = enable monitoring
DIS = disable monitoring
MSGI = incoming messages
MSGO = outgoing messages

ISDN features

You can select specific ISDN applications, such as Network Ring Again, for message monitoring. Only one or all ISDN applications can be monitored per D-channel at one time. The LD 96 commands are listed below, where x is the D-channel (DCHI or MSDL) port number.

ENL MSGI x FEAT feature
ENL MSGO x FEAT feature
DIS MSGI x FEAT feature
DIS MSGO x FEAT feature

Where “feature” can be:

NCT = Network Call Trace
NRAG = Network Ring Again
NACD = Network Automatic Call Distribution
TRO = Trunk Optimization
NMS = Network Message Services
OHQ = Offhook Queuing
RCFW = Network Remote Call Forward
NRPA = Network Radio Paging
NITC = Network Intercom
TAT = Trunk Anti-Tromboning

Message types

You can select specific types of messages to be monitored on a D-channel. The LD 96 commands are listed below, where **x** is the D-channel (DCHI or MSDL) port number.

```
ENL MSGI x MSG msg1 msg2 msg3
ENL MSGO x MSG msg1 msg2 msg3
DIS MSGI x MSG msg1 msg2 msg3
DIS MSGO x MSG msg1 msg2 msg3
```

Up to three message types (msg1, msg2, msg3) can be entered per command. The default is "ALL", which is all message types except SVC and SVCA. The message types are:

- 1 ALER = alerting
- 2 ALL = all primitives and all messages except SVC and SVCA
- 3 CAPR = call proceeding
- 4 CON = connect
- 5 CONA = connect ack
- 6 DISC = disconnect
- 7 FAC = facility
- 8 FACA = facility ack
- 9 FACR = facility reject
- 10 INFO = information
- 11 NOTF = notify
- 12 PRIM = all primitives (such as release indication)
- 13 PROC = call proceeding
- 14 PROG = progress
- 15 RLS = release
- 16 RLSC = release complete
- 17 RST = restart
- 18 RSTA = restart ack

- 19 STAT = status
- 20 STEN = status enquiry
- 21 STP = setup
- 22 STPA = setup ack
- 23 SVC = service
- 24 SVCA = service ack
- 25 UI = user information

Setting output format levels

There are three levels (0-2) of message decoding. The level determines the format of the data output to the system terminal. To set the output level enter the following.

SET MSGI x MON (0)-2
SET MSGO x MON (0)-2

Level 0 outputs the message as shown below.

DCH x y MSG msgtype REF xxxxxxxx CH zzzz TOD hh:mm:ss <more data>

Where:

x = D-channel number
y = "I" for incoming messages, "O" for outgoing messages
xxxxxxx = the call reference number
zzzz = the loop and channel number (or TN for ISL channels)

<more data> = additional lines of information, such as:

- 1 CALLED # = called number
- 2 CALLING # = calling number of originator
- 3 CAUSE = reason for action taken (e.g, unassigned number)
- 4 CONNECT # = connected number
- 5 FEAT = feature (such as Network Ring Again)
- 6 NUM PLAN = Numbering plan used (such as private)

- 7 PROGRESS = call progress description
- 8 REDIR REASON = reason the call was re-directed
- 9 REDN # = call redirection number
- 10 STATE = call state
- 11 STATUS = channel status
- 12 TYPE = type of channel

Level 1 outputs the raw data (as was done in X11 Release 16).

The format is:

DCH x y MSG msgtype REF xxxxxxxx TN zzzzzz CH# x CK x
<more data in hexadecimal>

Level 2 output identifies the individual Information Elements (IE) in the messages and their hexadecimal values. The possible IEs are:

- 1 BCAP = bearer capability
- 2 CAST = call state
- 3 CHGA = charge advice
- 4 CHID = channel ID
- 5 CHST = change status
- 6 CLED = called number
- 7 CLES = called party subaddress
- 8 CLNG = calling number
- 9 CLNS = calling party subaddress
- 10 CNS5 = codeset 5 connected number subaddress
- 11 CON# = connect number
- 12 CON5 = codeset 5 connected number
- 13 CSE = cause
- 14 DES6 = codeset 6 Destination IE

- 15 DISP = display
- 16 FAC = facility IE for codeset 0
- 17 FAC6 = codeset 6 facility IE
- 18 FIND = feature Indication
- 19 HLYR = higher layer compatibility
- 20 INFO = information request
- 21 KYPD = keypad
- 22 LLYR = low layer compatibility
- 23 LS5 = locking Shift to codeset 5
- 24 LS6 = locking shift to codeset 6
- 25 LS7 = locking Shift to codeset 7
- 26 NLS5 = codeset 5 non-locking shift
- 27 NLS6 = codeset 6 non-locking shift
- 28 NLSO = non-locking shift to codeset 0
- 29 NOTI = notify indicator
- 30 NSF = network specific facility
- 31 ORG# = originating called number
- 32 ORG6 = codeset 6 Originating IE
- 33 PROG = progress indicator
- 34 RDG6 = codeset 6 redirecting number
- 35 REDG = redirecting number
- 36 REDN = redirection number
- 37 RETR = codeset 6 reason for return
- 38 RSTI = restart indicator
- 39 SHFT = shift
- 40 SIGN = signal
- 41 TACG = codeset 6 TTC advice charge

42 TNS = transit network selection

43 UNKN = unknown

44 UUI = user-user information

Deactivate monitor from a maintenance telephone

Once the system has been tied up or flooded with the monitored messages, it is very difficult, if not impossible, to use LD 96 to disable the monitors. In this case, a maintenance telephone with MTA Class of Service can be used to deactivate the monitor.

To activate or deactivate the monitor from a maintenance telephone, simply dial: SPRE 9913 x 01

Where:

SPRE = special function access code (defined in LD 15)

9913 = feature code to activate or deactivate the monitor

x = 0 to deactivate, 1 to activate

01 = DCH monitor ID

Note 1: Dial tone is provided if successful.

Note 2: Use "RST MON" to reactivate the monitor from LD 96.

Note 3: Deactivating the monitor by the maintenance telephone does not disable the monitor, but simply halts the output. If the monitor is deactivated and not disabled using the DIS MSGI and DIS MSGO commands, then the monitor becomes re-activated after a datadump and sysload.

Get monitor status

To determine the current status of the D-channel monitor, enter the following command, where x is the D-channel (DCHI or MSDL) port number.

STAT MON x

Output format:

***DCH MSGI x LEVEL y ACTV (where, y = format level)

MSG - msg1 msg2. . .

FEAT - feat

CH - loop channel (or l s c u for ISL)

***DCH MSGO x LEVEL y ACTV

MSG - msg1 msg2. . .

FEAT - feat

CH - loop channel (or l s c u for ISL)

If the monitor had been deactivated by the maintenance telephone, INACTV is output instead of ACTV.

Multi-purpose Serial Data Link (MSDL)

The MSDL provides 4 ports for ISDN Primary Rate D-channel (DCH) and Application Module Link (AML).

The MSDL commands are listed below, x is the MSDL device number (defined by prompt DNUM in LD 17).

DIS MSDL x (ALL)—Disable MSDL device

ENL MSDL x (FDL, ALL)—Enable MSDL device

RST MSDL x—Reset MSDL device

STAT MSDL (x) (FULL)—Get MSDL status

SLFT MSDL x—Execute a self-test on MSDL device x

These commands are also provided in Input/Output Diagnostic (LD 37) and Link Diagnostic (LD 48).

D-channel commands (pre-Release 18)

The following commands are used to enable, disable, test and get the status of a D-channel. Refer to the LD 96 introduction for details on the use of these commands.

In X11 Release 18 all commands now accept "DCH" instead of "DCHI." For example: use "ENL DCH x" instead of "ENL DCHI x." The STAT DCH and STAT DCHI commands have been combined to STAT DCH.

DIS AUTO x	Disable automatic recovery for DCH x
DIS DCHI x	Disable DCHI x
DIS MSGI x	Disable the monitoring of all incoming messages from D-channel x
DIS MSGI x (options)	Disable the monitoring of incoming messages from D-channel x for the selected options (Release 17)
DIS MSGO x	Disable the monitoring of all outgoing messages from D-channel x
DIS MSGO x (options)	Disable the monitoring of outgoing messages for D-channel x for the selected options (Release 17)
DIS SERV x	Disable service messages on D-channel x
DIS SSM x y	Disable Supplementary Service Monitor for feature y on D-channel x
DWNL DCHI x (t)	Down load layer 3 message configuration table t and LAPD parameters from DCHI x
ENL AUTO x	Enable automatic recovery for DCH x
ENL DCHI x	Enable DCHI port x
ENL MSGI x	Enable the monitoring of all incoming messages from D-channel x (Release 16 and earlier)
ENL MSGI x (options)	Enable the monitoring of incoming messages from D-channel x for the selected options (Release 17)
ENL MSGO x	Enable the monitoring of all outgoing messages for D-channel x (Release 16 and earlier)
ENL MSGO x (options)	Enable the monitoring of outgoing messages for D-channel x for the selected options (Release 17)
ENL SERV x	Enable service messages on D-channel x
ENL SSM x y	Enable Supplementary Service Monitor for feature y on D-channel x
EST DCH x	Establish multiple frame operation on D-channel x

PLOG DCHI x	Get D-channel statistics log for DCHI x (Print protocol error log on DCH x)
PTAB DCHI x (t)	Display layer 3 message configuration table t and LAPD parameters from DCHI x
RLS DCH x	Release D-channel x
RST DCH x	Reset D-channel x, inhibit signaling
RST MON	Reset or reactivate monitoring on D-channels with enabled monitors
SDCH DCH x	Switch to the standby D-channel x
SET MSGI x MON (0)-2	Set monitor output format level for incoming messages on D-channel x
SET MSGO x MON (0)-2	Set monitor output format level for outgoing messages on D-channel x
STAT DCH (x)	Get status of D-channel x or all D-channels if x not specified
STAT DCHI (x)	Get status of DCHI port x or all DCHI ports if x not specified
STAT MON (x)	Display the incoming and outgoing monitoring status of D-channel x or all D-channels if x not specified.
STAT SERV (X)	Get status of service messages on D-channel x or all D-channels if x not specified
TEST 100 x	Perform interrupt generation test on DCHI x
TEST 101 x	Perform loop back mode test on DCHI x
TEST 200 x	Perform interrupt handler test on DCHI x (not supported on Option 11)
TEST 201 x	Test interrupt handler-to-link interface path (not supported on Option 11)

D-channel commands (Release 18 & later)

The following commands are used to enable, disable, test and get the status of a D-channel. Refer to the LD 96 introduction for details on the use of these commands.

Note: In X11 Release 18 and later, all commands now accept "DCH" instead of "DCHI." For example: use "ENL DCH x" instead of "ENL DCHI x." The STAT DCH and STAT DCHI commands have been combined to STAT DCH.

DIS AUTO x	Disable automatic recovery for DCH x
DIS DCH x	Disable DCH x
DIS MSGI x (options)	Disable the monitoring of incoming messages on D-channel x
DIS MSGI x FEAT CPNW	Disable incoming monitoring for the Network CPNW ISDN messages on D Channel x.
DIS MSGO x (options)	Disable the monitoring of outgoing messages on D-channel x
DIS MSGO x FEAT CPNW	Disable outgoing monitoring for the Network CPNW ISDN messages on D Channel x.
DIS SERV x	Disable service messages on D-channel x
DIS TMDI x (ALL)	Disable TMDI card x
DLIF DCH x	Force download of D channel x (For PRI UIPE application)
ENL AUTO x	Enable automatic recovery for DCH x
ENL DCH x (FDL)	Enable DCH x and attempt to establish the link, and force download to MSDL
ENL MSGI x (options)	Enable the monitoring of incoming messages on D-channel x
ENL MSGI x FEAT CPNW	Enable incoming monitoring for the Network CPNW ISDN messages on D Channel x.
ENL MSGO x (options)	Enable the monitoring of outgoing messages on D-channel x
ENL MSGO x FEAT CPNW	Enable outgoing monitoring for the Network CPNW ISDN messages on D Channel x.
ENL SERV x	Enable service messages on D-channel x
ENL TMDI x	Enable TMDI card number x
ENL TMDI x (FDL, ALL)	Enable TMDI Card number x and force a download
EST DCH x	Establish multiple frame operation on D-channel x
EST ISPC I ch (N)	Start the data interface establishment process at the ISPC slave side an ISPC link (where "N" = the "number of tries" counter)
FDIS NCAL <DCH#> <conn_ID>	Force disconnect the specified call-independent connection
PLOG DCH x	Print protocol error log on DCH x

LD 96

Page 400 of 472 D-channel commands (Release 18 & later)

RLS DCH x	Release D-channel x
RLS ISPC I ch	Stop the data interface establishment process
RST DCH x	Reset D-channel x, inhibit signaling
RST MON	Reset or reactivate monitoring on D-channels with enabled monitors
RST TMDI x	Reset TMDI card x
SDCH DCH x	Switch to the standby D-channel x
SET MSGI x MON (0)-2	Set monitor output format level for incoming messages on D-channel x
SET MSGO x MON (0)-2	Set monitor output format level for outgoing messages on D-channel x
SLFT TMDI x	Invoke self test x
STAT DCH (x)	Get status of one or all D-channels
STAT ISPC I ch	Get status of data interface establishment process at ISPC slave side ISPC link which has been configured to convey D-channel signaling
STAT NCAL <DCH#>	List all current call-independent connections on a given PRI D-channel.
STAT NCAL <DCH#> <conn_ID>	List information pertaining to a specific call-independent connection
STAT MON (x)	Display the incoming and outgoing monitoring status of one or all D-channels.
STAT SERV (x)	Get the enable/disable status of services messages for one or all D-channels
STAT TMDI (x FULL)	Get TMDI status x
TEST 100 x	Perform interrupt generation test on DCH x
TEST 101 x	Perform loop back mode test on DCH x
TEST 200 x	Perform interrupt handler test on DCH x (not supported on Option 11)
TEST 201 x	Test interrupt handler-to-link interface path (not supported on Option 11)

Multipurpose Serial Data Link (MSDL) commands

The MSDL commands are listed below, **x** is the MSDL device number (defined by prompt DNUM in LD 17). These commands are also provided in Input/Output Diagnostic (LD 37) and Link Diagnostic (LD 48).

DIS MSDL x (ALL)	Disable MSDL device x
ENL MSDL x (ALL, FDL)	Enable MSDL device x
RST MSDL x	Reset MSDL device x
SLFT MSDL x	Invoke self-test for MSDL device x
STAT MSDL (x [FULL])	Get MSDL status

Note: See “Alphabetical List of commands” in LD 48 for a complete description of these commands.

Multipurpose Serial Data Link D-channel commands

The following commands are only available for D-channels on an MSDL port.

DIS LLB x	Disable local loop back mode on MSDL DCH x
DIS RLB x	Disable remote loop back mode on MSDL DCH x
DIS TEST x	Disable TEST mode on MSDL DCH x
DLIF DCH xx FDL	Force download a PRI interface table.
ENL LLB x	Enable local loop back mode on MSDL DCH x
ENL RLB x	Enable remote loop back mode on MSDL DCH x
ENL TEST x	Enable TEST mode on MSDL DCH x
MAP DCH x	Get physical address and switch settings for D-channels
PCON DCH x	Print configuration parameters on MSDL DCH x
PMES DCH x	Print incoming layer 3 messages on MSDL DCH x
PTRF DCH x	Print traffic report on MSDL DCH x
PTRF DCH x	Print traffic report on MSDL DCH x
TEST LLB x	Start local loop back test on MSDL DCH x
TEST RLB x	Start remote loop back test on MSDL DCH x

Alphabetical list of commands

Command	Description	Pack/Rel
DIS AUTO x	Disable automatic recovery for DCH x	pra-13
DIS DCH x	Disable DCH x. This changes the status of the DCH to DSBL and the status of the D-channel to DCH RST (reset). In X11 Release 17 and earlier, the command format is: DIS DCHI x.	pra-18
DIS DCHI x	Disable DCHI x. This changes the status of the DCHI card to DSBL and the status of the D-channel to DCH RST (reset).	pra-13
DIS LLB x	Disable local loop back mode on MSDL DCH x. See "ENL TEST" command for details.	msdl-18
DIS MSGI x	Disable the monitoring of all incoming messages from D-channel x.	pra-13
DIS MSGI x (options)	Disable the monitoring of all incoming messages from D-channel x. The available options are: <ol style="list-style-type: none"> 1. CH loop channel: disable incoming messages on B-channel loop channel (non-Option 11 systems) 2. CH card channel : disable incoming messages on B-channel card channel (Option 11 systems) 3. CH l s c u: disable incoming messages on ISL-channel loop shelf card unit (non-Option 11 systems) 4. CH c u : disable incoming messages on ISL-channel card unit (Option 11 systems) 5. FEAT feature: disable incoming messages for a PRI feature 6. MSG msg1 msg2 msg3: disable incoming message types Refer to the LD 96 introduction for details. 	pra-17
DIS MSGI x FEAT CPNW	Disable incoming monitoring for the Network CPNW ISDN messages on D Channel x.	basic-21
DIS MSGO x	Disable the monitoring of outgoing messages from D-channel x.	pra-13

DIS MSGO x (options)	Disable the monitoring of outgoing messages from D-channel x. Refer to DIS MSGI x (options) for the list of options.	pra-17
DIS MSGO x FEAT CPNW	Disable outgoing monitoring for the Network CPNW ISDN messages on D Channel x.	basic-21
DIS RLB x	Disable remote loop back mode on MSDL DCH x. See "ENL TEST" command for details.	msdl-18
DIS SERV x	Disable service messages on D-channel x. See "ENL SERV" for details. The D-channel must be disabled before disabling service messages.	pra-15
DIS SSM x y	Disable Supplementary Service Monitor for feature y on D-channel x. Only the NAS supplementary service is included (service identifier = 3)	
DIS TEST x	Disable TEST mode on MSDL DCH x. See "ENL TEST" command for details. When the test mode state is disabled, the DCH link will go back to release state and the DCH background audit will then try to establish the link.	msdl-18
DIS TMDI x (ALL)	Disable TMDI card x	basic-24
DLIF DCH x	Force download of D channel x (For PRI UIPE application). Note that : 1. D channel specified must use the UIPE application 2. D channel must be disabled 3. D channels configured on the same MSDL card using the same interface must be disabled	uipe-20
DLIF DCH xx FDL	Force download a PRI interface table. To download the ISDN interface cable: 1. the D channel must be disabled 2. the UIPE application must be active 3. other D channels on the same MSDL card must be disabled	qsig-22

DWNL DCHI x (t)	<p>Down load layer 3 message configuration table t and LAPD parameters from DCHI x.</p> <p>If table t is not specified, all table information is shown. This command is intended as a debugging tool for system designers.</p>	pra-13
ENL AUTO x	<p>Enable automatic recovery for DCH x. Automatic recovery is initially enabled.</p>	pra-13
ENL DCH x (FDL)	<p>Enable DCH x and attempt to establish the link, and force download to MSDL. A self-test on the DCH runs automatically. If successful, then:</p> <ul style="list-style-type: none">• DCHI status: OPER• DCH status: EST <p>If this is not successful, then:</p> <ul style="list-style-type: none">• DCHI status: OPER• DCH status: RLS <p>FDL forces D-channel loadware to the MSDL card. This is optional. In X11 Release 17 and earlier, the command format is: ENL DCHI x.</p>	msdl-18
ENL DCHI x	<p>Enable DCHI port x.</p> <p>A self-test on the DCHI card runs automatically. If successful, then:</p> <ul style="list-style-type: none">• DCHI status : OPER• DCH status: EST <p>If test is not successful, then:</p> <ul style="list-style-type: none">• DCHI status: OPER• DCH status: RLS	pra-13
ENL LLB x	<p>Enable local loop back mode on MSDL DCH x. See "ENL TEST" command for details.</p>	msdl-18
ENL MSGI x	<p>Enable the monitoring of all incoming messages from D-channel x.</p>	pra-13

ENL MSGI x (options)	Enable the monitoring of all incoming messages from D-channel x. Refer to DIS MSGI x (options) for the list of options.	pra-17
ENL MSGI x FEAT CPNW	Enable incoming monitoring for the Network CPNW ISDN messages on D Channel x.	basic-21
ENL MSGO x	Enable the monitoring of all outgoing messages for D-channel x.	pra-13
ENL MSGO x (options)	Enable the monitoring of all outgoing messages for D-channel x. Refer to DIS MSGI x (options) for the list of options.	pra-17
ENL MSGO x FEAT CPNW	Enable outgoing monitoring for the Network CPNW ISDN messages on D Channel x.	basic-21
ENL RLB x	Enable remote loop back mode on MSDL DCH x. See "ENL TEST" command for details.	msdl-18
ENL SERV x	<p>Enable service messages on D-channel x.</p> <p>"Service" and "Service Acknowledge" messages are supported on individual PRA B channels, ISL channels and D-channels. They are used to coordinate channel status between the near and far end. A channel status can be in service, maintenance or out-of-service.</p> <p>The primary and backup D-channel must be disabled before enabling service messages.</p> <p>Make sure both ends support service messages before using this command. For Meridian 1/Meridian SL-1 to Meridian 1 / Meridian SL-1, both systems must have X11 Release 15 or higher.</p>	pra-15

By default, SERV is disabled when the interface type is Meridian 1/Meridian SL-1 (LD 17 IFC = SL1).

When enabled, service messages are supported on individual PRA B-channels, ISL channels and D-channels. When disabled, service messages are provided automatically on D-channels with Backup D-channel configured.

For Meridian 1/Meridian SL-1 to DMS, or Meridian 1/Meridian SL-1 to AT&T only service messages on individual PRA B-channels and ISL channels are supported.

By default, SERV is disabled when the interface type is DMS (LD 17), and enabled when the interface type is AT&T (LD 17 IFC = ESS4/ESS5).

ENL SSM x y	Enable Supplementary Service Monitor for feature y on D-channel x, where: y = 3 for Network Attendant Service. All other entries are reserved for future use	nas-18
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Output format is as follows:

Standard ISDN message monitor output format appended with four fields.

Where:

- Field 1 = Customer number
- Field 2 = Indicator of whether the message is one that was decoded at a "tandem" node
- Field 3 = Descriptive string about a specified item
- Field 4 = Numeric information about specified item

Examples of the four fields follow:

```
--> 002 T-ACCESS TRKINFO
--> 002 T-PRIVATE TRUNK
--> 002 T-TIE TRUNK
--> 002 T-TANDEM COUNT (000001)
```

ENL TEST x	Enable TEST mode on MSDL DCH x.	msdl-18
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The DCH is put into TEST mode to perform the local loop back (LLB) or remote loop back (RLB) test. The DCH link can only be put in test mode if it is in the release or established state. If the link is in establish state, the DCH link is first released, and then put in test mode.

The local loop back test first tests the expedited interface, then the ring interface. The test consists of sending a data packet through each interface, which in turn is sent back by Layer 2. This data packet is then validated to ensure that the contents of the data packet are the same that were originally sent.

Example:

- ENL TEST x enter TEST mode
- ENL LLB x enter local loop back mode
- TEST LLB x perform test (results are PASS or FAIL)
- DIS LLB x exit local loop back mode
- DIS TEST x exit TEST mode and restore link

The remote loopback test is used to verify the integrity of the physical link. This following test is only supported if both the D channels are on the MSDL card and both switches are running Release 18 or above. To run the test the far-end must be in the remote loopback mode (ENL RLB x). The DCH running the test (near-end) must be in TEST mode.

Example:

Far-end:

ENL TEST x — enter TEST mode
ENL RLB x — enter remote loopback mode
DIS RLB x — exit remote loopback mode (after test)
DIS TEST x — exit TEST mode and restore link

Near-end:

ENL TEST x — enter TEST mode
TEST RLB x — perform test (results are PASS or FAIL)
DIS TEST x — exit TEST mode and restore link

If the far end is not an MSDL D-channel, use the RLBK command in LD60 to set up the remote loopback test.

ENL TMDI x	Enable TMDI card number x	basic-24
------------	---------------------------	----------

ENL TMDI x ALL	Enable all units on TMDI card number x	basic-24
ENL TMDI x FDL	Enable TMDI Card number x and force a download	basic-24
EST DCH x	Establish multiple frame operation on D-channel x. With the absence of the back-up D channel, issuing the EST DCH x command clears all the B-channels on loop x. If backup D-channel is available, the system switches to the backup D-channel and the B-channels of loop x are not cleared.	pra-13
EST ISPC l ch (N)	Establish data interface process at the ISPC SLAVE side of an ISPC link at loop (l) and channel (ch), where "N" = the "number of tries" counter. The range for N = 0-(1)-255. When N = 0, the mode is set to AUTOMATIC. This mode requires one TDS slot and one DTR unit. This mode is not recommended for use on small systems or systems loaded with heavy traffic. When N > 0, the process is activated for a period of up to N * 30 minutes. The available range goes from 30 minutes (N = 1) to 128.5 hours or 5 days (N = 255). If no value is entered for N, it defaults to a value of 1. When N = 1, one attempt will be made to establish the data interface process before the ISPC slave D-channel is released.	ispc-22
FDIS NCAL <DCH#> <conn_id>	Force disconnect the specified call-independent connection as defined by its connection ID number. The connection ID number is a number in the range of 1-9999 that identifies the call independent connection on a given DCH.	qsig gf-22
MAP DCH x	Get physical address and switch settings for D-channels. This command outputs the card name and switch settings for D-channels. For example: MAP DCH DCH 15 DCHI 07 DCH 23 MSDL 09 PORT 2	msdl-18

PCON DCH x Print configuration parameters on MSDL DCH x. This command outputs the parameters originally downloaded when the D-channel was enabled. The output format is: msdl-18

DCH : x LINK PARAM CONFIRM TIME: hh:mm:ss

- MSDL x = 0-15
- PORT x = 0-3
- INTERFACE aaa = SL1, D100, D250, ESS4, S100, etc.
- OPER MODE aaa bbb ccc ddd eee

Where: aaa = RS422, RS232 ; bbb = DTE, DCE ; ccc = USR, NET ; ddd = baud rate ; eee = clock (EXT or INT CLK)

T200 xx (LAPD parameter)

T203 xx (LAPD parameter)

T200 xx (LAPD parameter)

N201 xx (LAPD parameter)

K xx (LAPD parameter)

N2X4 xx (LAPD parameter if INTERFACE is ITR6)

PLOG DCH x Print protocol error log-on DCH x. pra-18

Protocol errors can be the result of PRI transmission problems and re-start procedures, or a protocol mismatch with the far end. The PLOG counters are cleared after the PLOG is printed or the DCH card is enabled.

In X11 Release 17 and earlier, the command format is:

- PLOG DCHI x

When a protocol counter overflows, the PLOG is printed automatically and the counters are cleared. The counter is also cleared when the D-channel is disabled.

Response in X11 *Release 17* and earlier is:

DCH xx I xxxx
yy zz 01 02 03...16

Response for MSDL DCH in X11 *Release 18* and later is:

DCH : xx MAINT CONFIRM TIME: hh:mm:ss
01 cc
11 cc
23 cc

Where:

- x = DCH number
- xxxx = system real time (in hexadecimal)
- yy = maintenance indication primitive
- zz = maintenance indication task ID
- 01 02 03 . . . 16 = protocol error counters as listed below
- cc = protocol error counts

In X11 Release 18 and later, only the non-zero counters are output. Protocol error counters:

- 01 = Count of missing PRI handshakes
- 02 = Count of peer initiated re-establishment link
- 03 = Count of unsuccessful retransmit N200 of SABME
- 04 = Count of unsuccessful retransmit N200 of DISC
- 05 = Count of N(R) errors
- 06 = Count of I fields with length greater than N201
- 07 = Count of undefined frames
- 08 = Count of I fields but not allowed
- 09 = Count of FRMR frames
- 10 = Count of CRC error frames
- 11 = Count of REJ frames
- 12 = Count of messages with less than 4 octets
- 13 = Count of undefined protocol discriminators
- 14 = Count of undefined message types
- 15 = Count of messages missing mandatory information elements
- 16 = Count of messages with undefined information elements
- 17 = Count of layer 1 reports of no external clock being received
- 18 = Count of aborted frames
- 19 = Count of SABME frames received with incorrect C/R bit
- 20 = Count of supervisory frames received with F = 1
- 21 = Count of unsolicited DM responses with F = 1
- 22 = Count of unsolicited UA responses with F = 1
- 23 = Count of unsolicited UA responses with F = 0
- 24 = Count of DM responses with F = 0
- 25 = Number of times that no response was received from the far end after N200 retransmissions of RR or RNR

- 26 = Count of frames received with incorrect header length
- 27 = Number of times owner receiver busy condition was entered
- 28 = Number of times peer receiver busy condition was entered
- 29 = Count of messages with call reference length greater than 2
- 30 = Count of optional IEs received with invalid contents
- 31 = Count of mandatory IEs received with invalid contents
- 32 = Count of messages received with IE's not ordered correctly
- 33 = Count of IEs which were repeated in received messages, but are only allowed to appear once per message
- 34 = Count of IEs received with length exceeding the specified maximum length for the IE
- 35 = Count of layer 3 messages from far-end with invalid call reference flag value of 0.
- 36 = Count of layer 3 messages from far-end with invalid call reference flag value of 1.
- 37 = Count of layer 3 messages from far-end with invalid global call reference.
- 38 = Count of layer 3 messages from SL-1 that are too short.
- 39 = Count of layer 3 messages from SL-1 containing an undefined message type.
- 40 = Count of layer 3 messages from SL-1 missing mandatory IE(s).
- 41 = Count of layer 3 messages from SL-1 containing unsupported IE(s).
- 42 = Count of layer 3 messages from SL-1 containing invalid operational IE(s).
- 43 = Count of layer 3 messages from SL-1 containing invalid mandatory IE(s).
- 44 = Count of layer 3 messages from SL-1 with IE(s) out of order.
- 45 = Count of layer 3 messages from SL-1 containing repeated IE(s).
- 46 = Count of layer 3 messages from far-end with an invalid call reference length.
- 47 = Count of layer 3 messages from SL-1 with an invalid call reference flag value of 0.

- 48 = Count of layer 3 messages from SL-1 with an invalid call reference flag value of 1.
- 49 = Count of layer 3 messages from SL-1 with an invalid global call reference.
- 50 = Count of unexpected layer 3 messages received from the far-end.
- 51 = Count of unexpected layer 3 messages received from the SL-1.
- 52 = Count of unexpected layer 3 timer expirations.
- 53 = Count of protocol messages received when D-channel is not in service or waiting for a Service Acknowledge message.

PLOG DCHI x Get D-channel protocol statistics log for DCHI x.

pra-13

Protocol errors can be the result of PRI transmission problems and restart procedures, or a protocol mismatch with the far-end.

The PLOG counters are cleared after the PLOG is printed or the DCHI card is enabled. When a protocol counter overflows, the PLOG is printed automatically and the counters are cleared.

Response is:

```
• DCH x I xxxx yy zz 01 02 03. . . 16
```

Where:

- x = DCHI port
- xxxx = system real time (in hexadecimal)
- yy = maintenance indication primitive
- zz = maintenance indication task ID
- 01 02 03. . . . 16 = protocol error counters as listed below:
- 01 = count of missing PRI handshakes
- 02 = count of peer initiated re-establishment link
- 03 = count of unsuccessful retransmit N200 of SABME
- 04 = count of unsuccessful retransmit N201 of DISC
- 05 = count of N(R) errors
- 06 = count of I fields with length greater than N201
- 07 = count of undefined frames
- 08 = count of I fields but not allowed
- 09 = count of FRMR frames
-

- 10 = count of CRC error frames
- 11 = count of REJ frames
- 12 = count of messages with less than 4 octets
- 13 = count of undefined protocol discriminators
- 14 = count of undefined message types
- 15 = count of messages missing mandatory info. elements
- 16 = count of messages with undefined information elements
-

PMES DCH x Print incoming layer 3 messages on MSDL DCH x.

msdl-18

The following data is kept by the MSDL DCH loadware and output when requested by this command or when one of the counters overflows:

DCH : xx

MSG LOG CONFIRM TIME: hh:mm:ss

SETUP: yy

CONNECT: yy

ALERT: yy

(Only non-zero counters are reported) (Where yy is the number of times a message was received)

When a counter overflows, the log is printed automatically and the counters are cleared. The counter is also cleared when the D-channel is disabled.

PTAB DCHI x (t)

pra-13

Display layer 3 message configuration table t and LAPD parameters from DCHI x. This command is intended as a debugging tool for system designers.

PTRF DCH x	<p>Print traffic report on MSDL DCH x.</p> <p>The following traffic information is output:</p> <ol style="list-style-type: none"> 1. PEAK_I_US xx % = peak incoming usage on the DCH link 2. AVRG_I_US xx % = average incoming usage on the DCH link 3. PEAK_O_US xx % = peak outgoing usage on the DCH link 4. AVRG_O_US xx % = average outgoing usage on the DCH link 5. TIME xx = time in seconds 6. CONNECTED CALLS xx: = total number of established call-independent connections 	msdl-18
RLS DCH x	<p>Release D-channel x. The link is in a waiting state, ready to come back up at any time.</p> <p>If you release the D-channel with active B-channels, then calls in progress are not affected. However, these calls are disconnected when you re-establish the D-channel.</p> <p>When the automatic recovery feature is active, the B-channels are automatically re-established</p>	pra-13
RLS ISPC l ch	<p>Stop the data interface establishment process.</p> <p>When this command is entered, the mode becomes MANUAL and the number of attempts to be performed = 0.</p>	ispc-22
RST DCH x	<p>Reset D-channel x, inhibit signaling. Forces the link to reset (RST) state, but does not disable PRI or DCH</p>	pra-13
RST MON	<p>Reset or reactivate monitoring on D-channels with enabled monitors.</p>	pra-17
RST TMDI x	<p>Reset TMDI card x</p>	basic-24
SDCH DCH x	<p>Switch to the standby D-channel x. This is only valid in a backup D-channel configuration.</p> <p>Releases a D-channel and switches over to the other D-channel as long as the other D-channel is in EST STBY, established standby mode.</p> <p>Where x is the standby D-channel number. This command changes the status of the active D-channel to standby, and changes the status of standby D-channel to active.</p>	pra-13

This command is not applicable if the recovery to primary D-channel option (prompt RCVP = YES in LD 17) is used.

This command is only applicable to Meridian 1/Meridian SL-1 to Meridian 1/Meridian SL-1 Backup D-channel interface (IFC = SL-1 in LD 17).

SET MSGI x MON (0)-2

pra-17

Set monitor output format level for all incoming messages on D-channel x. Refer to Setting output format levels earlier in the section.

SET MSGO x MON (0) -2

pra-17

Set monitor output format level for all outgoing messages on D-channel x. Refer to Setting output format levels earlier in the section.

SLFT TMDI x

Invoke self test on TMDI card x

basic-24

STAT DCH x

Get the present status of D-channel x, where x is the I/O port number (entering x to specify just one link is optional).

pra-13

DCH status may be:

- EST = DCH link is established
- EST STBY = DCH link is established and is the standby
- FAIL = DCH link has failed
- RLS = DCH link is released
- RST = DCH link is in reset state
- AEST, ARLS, REST = these codes indicate intermediate background functions are being performed. Enter the STAT command again to determine final status.

STAT DCH (x)

Get status of one or all D-channels.

pra-18

If a DCH number is not entered, the status of all D-channels is output. The output format is:

DCH x : aaaa bbbb cccc dddd x

Where:

- x = DCH number
- aaaa = application status
- bbbb = link status
- cccc = AUTO if autorecovery is enable
- dddd = BKUP x or PRIM x (associated primary or backup DCH)

Application status (aaaa):

- APRI = Awaiting PRI response
- CPRI = Checking PRI
- DIAG = application has failed
- DSBL = application is disabled
- OPER = link is operational
- RST = application is in reset state
- SDCH = Setting D-channel

Link status (bbbb):

- AEST = Awaiting establishment
- ARLS = Awaiting release
- EST ACTV = DCH link is established and active
- EST STBY = DCH link is established and is the standby
- FAIL = DCH link has failed
- REST = request establishment
- RLS = DCH link is released
- RST = DCH link is in reset state
- TST = Test mode

In X11 Release 17 and earlier, the STAT DCHI command is required to get the application status.

STAT DCHI (x) Get the present status of DCHI x (entering x to specify just one card, is optional). DCHI status may be: pra-13

1. DSBL = DCHI hardware is disabled.
2. DIAG = DCHI hardware has failed.
3. OPER = DCHI hardware is operational.
4. RST = DCHI is in reset state.
5. PRI, CPRI, SDCH = these codes indicate intermediate background functions are being performed. Enter the STAT DCHI command again to determine final status.

STAT ISPC I ch Get status of data interface establishment process at an ISPC SLAVE side of an ISPC link (where I = loop and ch = channel) which is configured to convey D-channel signaling. ispc-22

The status may be:

1. **DISABLED** = ISPC link is disabled
2. **AWAITING ESTABLISHMENT** = the data interface establishment process is waiting to receive DTMF digits. While waiting, dial tone is provided to the ISPC link at the SLAVE side.
3. **RELEASED** = the data interface establishment process is stopped because either an "RLS ISPC" command has been entered or because the maximum number of tries has been reached.
4. **ESTABLISHED** = data interfaces at both ends of the ISPC link are established.
5. **AWAITING RELEASE** = the ISPC link is being disconnected. Once disconnected, the link will transition to the "RELEASED" state.

The mode may be:

1. **MODE MANUAL N** = the data interface establishment process is running with up to "N" number of tries
2. **MODE AUTOMATIC** = the Meridian 1 provides dial tone to the ISPC slave D-channel.

STAT MON (x) Display the incoming and outgoing monitoring status of one or all D-channels. pra-13

STAT NCAL <DCH#>

qsig gf-22

List all current call-independent connections on a given PRI D-channel.

The response format is as follows:

- NCAL_CONN_ID: The connection ID number is a number in the range of 1-9999 that identifies the call independent connection on a given DCH.
- CREF: call reference number in HEX identifying independent connection
- STATE: current state of all call-independent connections (IDLE, CONN_REQ, CONN_EST)
- TIME: year month day hour:minute:second (the time when call independent connection request is made)
- APPL: applications using the call-independent connection (eg. NACD, NMS, ...)
- ORIG: originator
- DEST: destination

STAT NCAL <DCH#> <conn_ID>

qsig gf-22

List information pertaining to a specific call-independent connection as defined by its connection ID number.

The response format is as follows:

- NCAL_CONN_ID: The connection ID number is a number in the range of 1-9999 that identifies the call independent connection on a given DCH.
- CREF: call reference number in HEX identifying independent connection
- STATE: current state of all call-independent connections (IDLE, CONN_REQ, CONN_EST)
- TIME: year month day hour:minute:second (the time when call independent connection request is made)
- APPL: applications using the call-independent connection (eg. NACD, NMS, ...)
- ORIG: originator
- DEST: destination

STAT SERV (x) Get the enable/disable status of services messages for one or all D-channels. See "ENL SERV" for details.

pra-15

STAT TMDI x Get TMDI status on card x

basic-24

STAT TMDI x FULL

basic-24

Get TMDI status and all corresponding units.

TEST 100 x	<p>Perform interrupt generation test on DCHI x. This is an isolated hardware test. If this test fails, either a faulty DCHI card or a contention problem is indicated.</p> <p>Tests 100, 101, 200, and 201 must be run in sequential order. Established calls will stay up, but new calls cannot be placed. The DCH link must be in the reset (RST) state when these tests are run. Reset (RST) can be established when the status of the D-channel is established (EST) or released (RLS).</p>	pra-13
TEST 101 x	<p>Perform loop back mode test on DCHI x. This is an isolated hardware test. If this test fails, either a faulty DCHI card or a contention problem is indicated.</p>	pra-13
TEST 200 x	<p>Perform interrupt handler test on DCHI x. This is a software test which, when failed, indicates software problems. (Not supported on Option 11)</p>	pra-13
TEST 201 x	<p>Test interrupt handler-to-link interface path. This is a software test which, when failed, indicates software problems. (Not supported on Option 11)</p>	pra-13
TEST LLB x	<p>Start local loop back test on MSDL DCH x. See "ENL TEST" command for details.</p>	msdl-18
TEST RLB x	<p>Start remote loop back test on MSDL DCH x. See "ENL TEST" command for details.</p>	msdl-18

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X11 Release:	24

LD 117: Ethernet and Alarm Management

This overlay has a new command format which allows the administrator to:

1. configure the Release 22 Alarm Management feature
2. identify all Meridian 1 alarms
3. configure IP network interface addresses
4. perform all IP network related maintenance and diagnostic functions

Both Administration and Maintenance commands appear in this overlay.

New Command Format

LD 117 uses a new command line input interface (input parser) which has the following general structure (where “=>” is the command prompt):

=> COMMAND OBJECT [(FIELD1 value) (FIELD 2 value)... (FIELDx value)]

LD 117 offers the administrator the following configuration features:

1. **Context Sensitive Help** - Help is offered when “?” is entered. The Help context is determined by the position of the “?” entry in the command line. If you enter “?” in the COMMAND position, Help text will appear which presents all applicable command options. If you enter “?” in the OBJECT position, HELP text will appear which presents all applicable OBJECT options.
2. **Abbreviated Inputs** - The new input parser will recognize abbreviated inputs for commands, objects and object fields. For example, “N” can be entered for the command “NEW” or “R” can be entered for the object “Route”.
3. **Optional Fields** - Object fields with default values can be bypassed by the user on the command line. For example, to configure an object which consists of fields with default values, enter the command, enter the object name, press <return>, and the object will be configured with default values. All object fields do not have to be specified.
4. **Selective Change** - Instead of searching for a prompt within a lengthy

prompt-response sequence, "Selective Change" empowers the administrator to directly access the object field to be changed.

5. **Service Change Error Message Consistency** - The parser simplifies usage of service change error messages. LD 117 displays only SCH0099 and SCH0105.

New Alarm Management Capability

With the Release 22 Alarm Management feature, all *processor-based system events* are processed and logged into a new disk-based System Event List (SEL). Events which are generated as a result of administration activities, such as SCH or ESN error messages, *are not* logged into the SEL. Events which are generated as a result of maintenance or system activities, like BUG and ERR error messages, *are* logged into the SEL. Unlike the previous System History File, this new System Event List survives Sysload, Initialization and power failures.

The Event Collector

The Event Collector captures and maintains a list of all processor-based system events. The Event Collector also routes critical events to FIL TTY ports and lights the attendant console minor alarm lamp as appropriate. The System Event List (SEL) can be printed or browsed.

The Event Server

The *Event Server* consists of two components:

- 1 **Event Default Table (EDT)**: This table associates events with a default severity. By using the CHG EDT command in LD 117, the EDT can be overridden so that all events default to a severity of either INFO or MINOR. The EDT can be viewed in LD 117.

Sample Event Default Table (EDT)

Error Code	Severity
ERR220	Critical
IOD6	Critical
BUG4001	Minor

Note: Error codes which do not appear in the EDT will be assigned a default severity of MINOR.

- 2 Event Preference Table (EPT): This table contains site-specific preferences for event severities as well as criteria for severity escalation and alarm suppression. The administrator can configure the EPT to:
- a override the default event severity assigned by the default table
 - b escalate event severity of frequently occurring minor or major alarms

Sample Event Preference Table (EPT)

Error Code	Severity	Escalate Threshold (events/60 sec.) (see Note 2)
ERR??? (see Note 1)	Critical	5
INI???	Default	7
BUG1??	Minor	0
HWI363	Major	3

Note 3: The "?" is a wildcard. See section below for explanation of wildcard entries.

Note 4: The window timer length defaults to 60 seconds. However, this value can be changed by the Administrator. Read "Global Window Timer Length" on page 424 for more information.

Wildcards

The special wildcard character "?" can be entered for the numeric segment of an error code entry in the EPT to represent a range of events. All events in the range indicated by the wildcard entry can then be assigned a particular severity or escalation threshold.

For example, if "ERR???" is entered and assigned a MAJOR severity in the EPT, all events from ERR0000 to ERR9999 are assigned MAJOR severity. If "BUG3?" is entered and assigned an escalation threshold of 5, the severity of all events from BUG0030 to BUG0039 will be escalated to the next higher severity if their occurrence rate exceeds 5 per time window.

Escalation and Suppression Thresholds

The escalation threshold specifies a number of events per window timer length that when exceeded, will cause the event severity to be escalated up one level. The window timer length is set to 1 minute by default. Escalation occurs only for minor or major alarms. Escalation threshold values must be less than the universal suppression threshold value.

A suppression threshold suppresses events that flood the system and applies to all events. It is set to 15 events per minute by default.

Global Window Timer Length

Both the escalation and suppression thresholds are measured within a global window timer length. The window timer length is set to 1 minute by default. However, the window timer length can be changed by using the CHG TIMER command in LD 117.

TTY Output Format of Events

TTY event output can be formatted or unformatted. Formatted output is also called fancy format. Output format is configurable in LD 117 using the CHG FMT_OUTPUT command.

Fancy Format Output

Formatted output appears in the following template:

<severity> <report id> <date> <time> <prim_seq_no> <cp_id> <cp_ad>
DESCTXT: <descriptive text>
OPRDATA: <operator data>
EXPDATA: <expert data>

Field	Description
<severity>	***** (critical); **** (major); *** (minor); " " (blank for info)
<report id>	The report id consists of an event category (e.g. BUG, ERR, etc.) and an event number (1200, 230, etc.). It is padded with blanks at the end to ensure it is 9 characters long (4 characters max. for category and 5 digits max. for number). Examples of report ids are: ERR230, ACD3560, and BUG30.
<date>	DD/MM/YY
<time>	HH:MM:SS
<prim_seq_no>	Primary sequence number of the event (length of 5 digits)
<cp_id>	The Component ID is a 15 character string which indicates the id of the subsystem generating the alarm
<cp_ad>	The Component address is a 15 character string which indicates the address of the subsystem generating the event
<descriptive text>	This is an optional string which describes an event
<operator data>	This is an optional field which holds a 160 character string containing extra text or data to assist the operator in clearing a fault. This field contains any data output with a filtered SL-1 alarm (e.g. loop number, TN, etc.)
<expert data>	This is an optional variable length character string which contains extra text or data for a system expert or designer.

The following are samples of fancy format output:

```

*** BUG015 15/12/95 12:05:45 00345
EXPDATA: 04BEF0FC 05500FBA 05500EE2 05500EC6 05500EAA
BUG015 + 05500E72 + 05500E56 + 0550D96 + 055053A + 04D84E02 +
04D83CFC
BUG015 + 04D835CA 04D81BAE 04D7EABE 04F7EABE 04F7EDF2 04F7EFC
04F7E1B0

* ERR00220 15/12/92 12:05:27 00346
OPRDATA: 51

VAS0010 15/12/92 12:06:11 00347 VMBA VAS 5

```


Unformatted Output

Unformatted data consists of only the report ID and perhaps additional text. The following is a sample of unformatted output:

```
BUG015
BUG015 + 04BEF0FC 05500FBA 05500EE2 05500EAA 0550E8E
BUG015 + 05500E72 05500E56 05500D96 0550053A 04D84E02
BUG015 + 04D835CA 04D81BAE 04D7EABE 04F7EDF2 04F7E2FC 04&E1B0
BUG015 + 04F7E148

ERR00220 51
VAS0010
```

Ethernet and Point-to-Point Protocol

LD 117 may be used to configure and manage an IP network interface. The Meridian 1 51C, 61C, 81 and 81C Options are hardware-equipped for this advance with an Ethernet controller on the I/O processor (IOP) card. Each IOP card is equipped with a Local Area Network Controller for Ethernet (LANCE) which is preconfigured with a unique Ethernet address. The Option 11C will support Ethernet and Point-to-Point Protocol.

An Ethernet address is a unique 48-bit long physical address assigned to the Ethernet controller on the IOP. On a single CPU M1 system, there is only one IOP which contains one Ethernet interface and an IP address which must be configured. Single CPU systems use only a Primary IP address.

On a redundant or dual CPU M1 system, two IP addresses must be specified: Primary and Secondary. A dual CPU M1 system operating normally will use the Primary IP address. A dual CPU M1 system operating in split mode (the mode used only when upgrading software or hardware) will use the Secondary IP address.

Remote access to Meridian 1 switches is made possible with Point-to-Point Protocol (PPP). LD 117 may be used to configure IP addresses for Point-to-Point Protocol.

The Meridian 1 Ethernet interface is provided by the IOP pack with AUI cable on the back panel on Options 51C, 61C, 81 and 81C. The Option 11C provides Ethernet interface through an ethernet connection on the main cabinet. The Point-to-Point Protocol (PPP) can be established via asynchronous connection to any Meridian 1 SDI port. The IP addresses for Ethernet and PPP interface can be configured in overlay 117, and defaults will be used for all new installation and upgrades.

How to Configure Ethernet and Point-to-Point Protocol

The following tables explain how to configure IP addresses for Ethernet and Point-to-Point Protocol. These two tables are followed by examples.

Configure IP address for the Ethernet Interface

Step	Action
1	Load Overlay 117
2	Create host entries
3	Assign host to primary and/or secondary IP address(es)
4	Set up Ethernet subnet mask
5	Set up routing entry

Configure IP address for the Point-to-Point Protocol Interface

Step	Action
1	Load Overlay 117
2	Create host entries
3	Assign host to primary and/or secondary IP address(es)

Example 1 Configure IP address for the Ethernet Interface

Given: Primary IP address: 47.1.1.10 ; Secondary IP address: 47.1.1.11; Subnet mask: 255.255.255.0; Default Gateway IP: 47.1.1.1

Step	Action
1	Load Overlay 117
2	Create host entries. Enter one of the following commands: NEW HOST PRIMARY_IP 47.1.1.10 NEW HOST SECONDARY_IP 47.1.1.11 (for Dual CPU only) NEW HOST GATEWAY_IP 47.1.1.1 (if connected to customer LAN)
3	Assign host to primary and/or secondary IP address(es). Enter one of the following commands: CHG ELNK ACTIVE PRIMARY_IP CHG ELNK INACTIVE SECONDARY_IP (for Dual CPU only) Verify your IP address for Ethernet by entering the PRT ENLK command.
4	Set up Ethernet subnet mask. Enter the command: CHG MASK 255.255.255.0 Verify subnet mask setting by entering the command: PRT MASK
5	Set up routing entry. Enter the command: NEW ROUTE 0.0.0.0 47.1.1.1 (if connected to customer LAN) *Note that 0.0.0.0 = network IP; 47.1.1.1 = gateway IP Verify default routing by entering the command: PRT ROUTE

Note 1: For a single CPU machine, the secondary IP is not used.

Note 2: The secondary IP is only accessible when a system is in split mode.

Note 3: The subnet mask must be the same value used for the M1 Ethernet network.

Note 4: The M1 private Ethernet is used by all M1 devices for system access and control. An internet gateway must be used to isolate the M1 private Ethernet from the customer LAN.

Note 5: Routing information is required if an internet gateway or router connects an M1 private network to the customer's LAN.

Example 2**Configure IP address for the Point-to-Point Protocol Interface**

Given: Local IP address: 172.1.1.1; Remote IP address 100.1.1.1

Step	Action
1	Load Overlay 117
2	Create host entries. Enter one of the following commands: NEW HOST LOCAL_PPP 172.1.1.1 NEW HOST REMOTE_PPP 100.1.1.1 (this entry is optional)
3	Assign host to primary and/or secondary IP address(es). Enter one of the following commands: CHG PPP LOCAL LOCAL_PPP 0 (always use interface #0) CHG PPP REMOTE REMOTE_PPP 0 (this entry is optional) Verify your IP address(es) for PPP by entering the PRT PPP command.

Command Descriptions

Command	Definition	Description
****	Abort	Abort overlay
BROWSE	Browse	Browse an existing System Event List
CHG	Change	Change/modify object configuration
DIS	Disable	Disable Point-to-Point Protocol
ENL	Enable	Enable Point-to-Point Protocol
INV GENERATE CARDS	Enable	Begin generating card inventory
INV GENERATE SETS	Enable	Begin generating sets inventory
INV GENERATE ALL	Enable	Begin generating both card and sets inventory
INV PRT STATUS	Status	Print out the status of the Inventory feature
INV PRT CARDS	Print	Print out the Card Inventory file
INV PRT SETS	Print	Print out the Sets Inventory file
INV PRT ALL	Print	Print out both Card and Sets Inventory file
****	Abort	Abort overlay or Printing if it is printing an Inventory file
INV GENERATE ABORT	Abort	Abort any/all inventory generations
INV MIDNIGHT CARDS	Enable	Set Midnight to run card inventory file generations
INV MIDNIGHT SETS	Enable	Set Midnight to run sets inventory file generations
INV MIDNIGHT ALL	Enable	Set Midnight to run both card and sets inventory generations
INV MIDNIGHT OFF	Disable	Set Midnight to be turned off for both card and sets inventory generations
INV MIDNIGHT STATUS	Status	Get the state of the Midnight for Inventory.
NEW	New	Add and configure new object
OUT	Out	Delete existing object
PRT	Print	Print configuration of existing object
RST	Reset	Reset Object
SET	Set	Set ELNK subnet mask to configured value
STAT	Status	Display object statistics
UPDATE	Update	Update INET database

Object Descriptions

Object	Description
DBS	Database
EDT	Event Default Table: Table of default event entries and associated severities
ELNK	Ethernet interface
ELNK ACTIVE	Active Ethernet Link: Change the Primary IP address and host name
ELNK INACTIVE	Inactive Ethernet Link: Change the Secondary IP address and host name
EPT	Event Preference Table: Table of customer's event entries with associated severities
FMT_OUTPUT	Formatted Output: Determine if system events uses formatted (also called fancy) or unformatted output. See "TTY Output Format of Events" on page 424 for more information.
HOST	Host name
MASK	Subnet mask
OPEN_ALARM	Open Simple Network Management Protocol (SNMP) traps setting
PPP	Point-to-Point Protocol interface
PPP LOCAL	Local Point-to-Point Protocol interface address
PPP REMOTE	Remote Point-to-Point Protocol interface address
PTM	Point-to-Point Protocol idle Timer
ROUTE	Configure new routing entry
SELSIZE	System Event List Size: Number of events in System Event Log
SEL	System Event List
SUPPRESS	Suppress count: Number of times the same event is processed before it is suppressed
TIMER	Global window timer length. See "Global Window Timer Length" on page 424 for more information.

Alphabetical list of Administration commands

The commands listed below use the following general structure (where “=>” is the command prompt):

=> COMMAND OBJECT [(FIELD1 value) (FIELD 2 value)... (FIELDx value)]

In the table below, COMMANDS and OBJECTS are in bold typeface and fields are in regular typeface. Fields enclosed in brackets () are default values.

=> Command	Description
BROWSE SEL UP n	Browse up n # of lines in System Event List (SEL)
BROWSE SEL DOWN n	Browse down n # of lines in SEL
BROWSE SEL TOP	Browse to top of SEL
BROWSE SEL BOT	Browse to bottom of SEL
BROWSE SEL FIND xxx	Browse forward to find string xxx in SEL
BROWSE SEL BFIND xxx	Browse backward to find string xxx in SEL
CHG EDT NORMAL	Use Event Default Table (EDT) default severities
CHG EDT INFO	Override EDT; use INFO as default severity for all events except those specified in Event Preference Table (EPT)
CHG EDT MINOR	Override EDT; use MINOR as default severity for all events except those specified in Event Preference Table (EPT)
CHG ELNK ACTIVE hostname	Set Meridian 1 active Ethernet interface IP address
CHG ELNK INACTIVE hostname	Set Meridian 1 inactive Ethernet interface IP address
CHG EPT aa... a INFO x	Change an Event Preference Table (EPT) entry to Information severity, where: <ul style="list-style-type: none"> • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your CHG SUPPRESS entry.

=> Command	Description
CHG EPT aa... a EDT x	Change EPT to NT-defined severity from EDT, where: <ul style="list-style-type: none"> • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your CHG SUPPRESS entry.
CHG EPT aa... a MAJOR x	Change an EPT entry to Major severity, where: <ul style="list-style-type: none"> • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your CHG SUPPRESS entry.
CHG EPT aa... a MINOR x	Change an EPT entry to Minor severity, where: <ul style="list-style-type: none"> • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your CHG SUPPRESS entry.
CHG EPT aa... a CRITICAL x	Change an EPT entry to Critical severity, where: <ul style="list-style-type: none"> • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your CHG SUPPRESS entry.
CHG FMT_OUTPUT OFF	Turn off formatted output
CHG FMT_OUTPUT ON	Turn on formatted output
CHG MASK nnn.nnn.nnn.nnn	Change subnet mask
CHG PPP LOCAL hostname	Set Meridian 1 local Point-to-point Protocol interface IP address
CHG PPP REMOTE hostname	Set Meridian 1 remote Point-to-point Protocol interface IP address
CHG PTM 0-60	Change Point-to-point Protocol idle timer to specified value (in minutes)
CHG SELSIZE 5-(500)-2000	Change System Event List Size (number of events in SEL)

=> Command	Description
CHG SUPPRESS 5-(15)-127	Change global suppress for events (number of occurrences before event is suppressed)
CHG TIMER (1)-60	Change global timer window length in minutes. See "Global Window Timer Length" on page 424 for more information.
INV GENERATE CARDS	Requests for the Inventory feature to begin generating the Inventory file for all of the cards in the system. The generation produces an inventory file with all of the cards configured on the system. Those cards that are present in the system and have card ID are noted in the inventory file with their card type, TN, and card ID. Those cards that do not have card ID or are not present in the system, will be noted to be "Unavailable" in place of their card ID.
INV GENERATE SETS	Requests for the Inventory feature to begin generating the Inventory file for the digital telsets with their telsets' IDs that have been configured in the system. Those telsets that are present in the system and have sets ID are noted in the inventory file with their sets type, TN, sets ID, DES, Primary DN. Those telsets that do not have sets ID or are not present in the system will be noted to be "Unavailable" in place of their sets ID.
INV GENERATE ALL	Requests for the Inventory feature to begin generating both the card and telsets Inventory file.
INV PRT STATUS	Requests for the status of the Inventory feature. Result may look somewhat: Inventory status: Card file status is Ok 43 records; 18/03/1999 17:10:21 Sets file status is Ok 19 records; 18/03/1999 16:44:09
INV PRT CARDS	Requests for the Card Inventory file to be printed out to the output destination (i.e. TTY).
INV PRT SETS	Requests for the Sets Inventory file to be printed out to the output destination (i.e. TTY)
INV PRT ALL	Requests for both the Card Inventory file and the Sets Inventory file to be printed out to the output destination (i.e. TTY).

=> Command	Description
****	Abort overlay. This command can also be used to abort any Inventory file printing.
INV GENERATE ABORT	Abort any currently running Inventory generations.
INV MIDNIGHT CARDS	Scheduling for the Midnight to run Card Inventory generation.
INV MIDNIGHT SETS	Scheduling for the Midnight to run Sets Inventory generation.
INV MIDNIGHT ALL	Scheduling for the Midnight to run both Card and Sets Inventory generations.
INV MIDNIGHT OFF	Turns off Midnight run off Card and Sets Inventory generations.
INV MIDNIGHT STATUS	Print out the state of the Midnight schedule of Inventory.
NEW EPT aa... a INFO x	Assign Information severity to new EPT entry, where: <ul style="list-style-type: none">• aa... a = an event class with an event number (e.g. BUG1000, ERR0025)• x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your CHG SUPPRESS entry.
NEW EPT aa... a EDT x	Assign NT-defined severity from EDT to new EPT entry, where: <ul style="list-style-type: none">• aa... a = an event class with an event number (e.g. BUG1000, ERR0025)• x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your CHG SUPPRESS entry.
NEW EPT aa... a MAJOR x	Assign Major severity to new EPT entry, where: <ul style="list-style-type: none">• aa... a = an event class with an event number (e.g. BUG1000, ERR0025)• x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your CHG SUPPRESS entry.

=> Command	Description
NEW EPT aa... a MINOR x	Assign Minor severity to new EPT entry, where: <ul style="list-style-type: none"> • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your CHG SUPPRESS entry.
NEW EPT aa... a CRITICAL x	Assign Critical severity to new EPT entry, where: <ul style="list-style-type: none"> • aa... a = an event class with an event number (e.g. BUG1000, ERR0025) • x = optional entry to escalate value of EPT entry from (0)-Suppress value, as defined by default or your CHG SUPPRESS entry.
NEW HOST hostname IPaddress	Configure a new host entry. The host name must exist in the host table. The default setting for the Primary IP address is: 137.135.128.253. The default setting for Primary Host Name is: PRIMARY_ENET. The default setting for the Secondary IP address is: 137.135.128.254. The default setting for the Secondary Host Name is: SECONDARY_ENET. Host Name Syntax: A host name can be up to 16 characters in length. The first character of a host name must be a letter of the alphabet. A character may be a letter, number, or underscore(_). A period is used as a delimiter between domain names. Spaces and tabs are not permitted. No distinction is made between upper and lower case.
NEW ROUTE networkIP gateway IP	Configure a new routing entry
OUT EPT aa... a	Delete a single Event Preference Table (EPT) events, where: <ul style="list-style-type: none"> • aa... a = an event class with an event number (e.g. BUG1000, ERR0025)
OUT EPT ALL	Delete all entries in Event Default Table (EDT)
OUT HOST nnn	Delete configured host entry

=> Command	Description
OUT ROUTE nn	Delete configured routing entry
PRT EDT aa... a	Print a single Event Default Table (EDT) event, where: <ul style="list-style-type: none"> • aa... a = an event class with an event number (e.g. BUG1000, ERR0025)
PRT EDT aa... a bb...b	Print a range of Event Default Table (EDT) events, where: <ul style="list-style-type: none"> • aa... a = first entry in EDT event range (e.g. BUG1000, ERR0025) • bb...b = last entry in EDT event range (e.g. BUG1000, ERR0025)
PRT ELNK	Print active and inactive Ethernet interface IP addresses
PRT EPT aa... a	Print a single Event Preference Table (EPT) entry, where: <ul style="list-style-type: none"> • aa... a = an event class with an event number (e.g. BUG1000, ERR0025)
PRT EPT aa... a bb...b	Print specific Event Preference Table (EPT) entry, where: <ul style="list-style-type: none"> • aa... a = first entry in EPT event range (e.g. BUG1000, ERR0025) • bb...b = last entry in EPT event range (e.g. BUG1000, ERR0025)
PRT EPT ALL	Print all entries in Event Preference Table (EPT)
PRT FMT_OUTPUT	Print formatted output string
PRT HOST	Print network host table entry(ies) information stored in database
PRT MASK	Print subnet mask stored in database
PRT OPEN_ALARM	Print open Simple Network Management Protocol (SNMP) traps setting
PRT PPP	Print Point-to-point Protocol interface address(es)
PRT PTM	Print current Point-to-point Protocol idle timer settings
PRT ROUTE	Print routing table entry(ies) information stored in database
PRT SEL nn	Print most recent record(s) in system event list, where: nn = 0-(20)-SELSIZE. For example, if nn = 50, the 50 most recent events in the system event list will be printed.
PRT SELSIZE	Print System Event List size

=> Command	Description
PRT SUPPRESS	Print global suppress value
PRT TIMER	Print global timer window length (in minutes). See "Global Window Timer Length" on page 424 for more information.
OUT EPT ALL	Delete all entries in Event Preference Table (EPT)
OUT EPT aa...a	Delete a single EPT entry, where: <ul style="list-style-type: none">• aa... a = first entry in EPT event range (e.g. BUG1000, ERR0025)
RST ELNK ACTIVE	Reset Meridian 1 active Ethernet interface IP address to default value
RST ELNK INACTIVE	Reset Meridian 1 inactive Ethernet interface IP address to default value
RST MASK	Reset subnet mask to default
RST PPP LOCAL	Reset local Point-to-point Protocol interface IP address to default value
RST PPP REMOTE	Reset remote Point-to-point Protocol interface IP address to default value
RST PTM	Reset Point-to-point Protocol idle timer to default
UPDATE DBS	Rebuild INET database and renumber host and route entry ID

Alphabetical list of Maintenance Commands

Maintenance commands share the same entry format as Administration commands.

=> Command	Description
DIS BUF ALL	Disable buffering for all data types
DIS BUF CDR	Disable buffering for CDR data
DIS BUF TRF	Disable buffering for TRF data
DIS DBK	Display database disaster recovery's backup & restore
DIS HOST n	Remove a host from the run time host table, where: n = host entry number
DIS PPP	Disable Point-to-point Protocol access (this enables PPPD)
DIS ROUTE n	Remove a route from the run time routing table, where: n = route entry number
ENL BUF ALL	Enable buffering for all data types
ENL BUF CDR	Enable buffering for CDR data
ENL BUF TRF	Enable buffering for TRF data
ENL DBK	Enable database disaster recovery's backup & restore
ENL HOST n	Add a host to run time host table, where: n = host entry number
ENL PPP	Enable Point-to-point Protocol access (Enables PPPD command)
ENL ROUTE n	Add a route to run time routing table, where: n = route entry number
PING	Ping an IP address to test the network settings
SET MASK	Set ELNK subnet mask to configured value
SET OPEN_ALARM slot address	Add an SNMP (Simple Network Management Protocol) trap destination slot address from 0 to 7. The address format is: x.x.x.x. (TCP/IP) To clear slot, set address to 0.0.0.0.

=> Command	Description
STAT BUF	Display buffer info (data type,% full, not ready)
STAT DBK	Display status of disaster recovery (enabled, disabled)
STAT HOST	Display current runtime host table status
STAT PPP	Show Point-to-point Protocol connection status
STAT ROUTE	Display host and network routing table

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LD 135: Core Common Equipment Diagnostic

LD 135 provides diagnostic and maintenance information for Option 11C/51C/61C/81/81C machines with X11 Release 18 and later. It provides a means of performing the following functions:

- clearing minor and major alarms
- clearing and printing maintenance display contents for the primary Core
- testing the idle Core
- displaying CP card status and ID
- enabling and disabling CNI cards
- displaying CNI card ID and status
- testing SIMMs, inactive CNIs, and standby Core during daily routines
- switch Cores when in redundant mode
- during midnight routines checks primary CNIs, checks for Core redundancy, and attempts to switch Cores

When a status appears disabled, one or more Out-of-Service (OOS) messages may appear. Listed below are the possible OOS messages. (What actually appears are the numbers associated with the OOS text).

Possible OOS Messages

- 0 = CP local bus parity threshold exceeded
- 1 = CP card HPM timeout threshold exceeded
- 8 = Unconfigured CNI card.
- 9 = Port has been disabled by craftsperson.
- 10 = Device is not accessible.
- 16 = CNI to 3PE cable 1 on specified card and port lost.
- 17 = CNI to 3PE cable 2 on specified card and port lost.
- 18 = 3PE power lost.
- 19 = 3PE has been manually disabled.
- 20 = CNI card has been manually disabled.
- 21 = Card test failed.
- 22 = Port test failed.
- 23 = Extender disabled by Meridian 1 initialization.
- 24 = Port interrupt line 0 disabled.
- 25 = Port interrupt line 1 disabled.
- 26 = Port interrupt line 2 disabled.
- 27 = Port interrupt line 3 disabled.

Adding a group to an option 51C/61C/81/81C

It may be necessary to add a group, or groups, to your system after original installation. Refer to the *System installation NTP* for cabling and general installation information. Follow these steps to configure the new groups in the software.

- 1 Be sure to connect the cables from the network shelf to the active and standby IPB CNI card slots. Each CNI card has 2 ports and can support 2 groups.
- 2 Load Overlay 135 and disable the standby port connect to the new group. Switch Cores, then disable the standby port again (was the active one).

LD 135

DIS CNI c s p Disable the standby core CNI port
 SCPU Switch Cores If asked for FORCE, enter Yes.
 DIS CNI c s p Disable the standby core CNI port

- 3 Load Overlay 17 and configure the active and standby EXT for each new group.
- 4 Load Overlay 135 and enable the standby CNI port. Switch Cores and enable the standby again (was the active). Switch Cores again.

LD 135

ENL CNI c s p Enable the standby core CNI port
 SCPU Switch Cores If asked for FORCE, enter Yes.
 ENL CNI c s p Enable the standby CNI port
 SCPU Switch Cores If asked for FORCE, enter Yes.

- 5 Load Overlay 43 and datadump to save the new configuration.
- 6 Load Overlay 135 and perform some system integrity checks. Switch the Cores, and test the CNI ports.

LD 135

ENL CNI c s p Enable the standby CNI port
 SCPU Switch Cores If asked for FORCE, enter Yes.
 ENL CNI c s p Enable the standby CNI port
 SCPU Switch Cores If asked for FORCE, enter Yes.

Removing a group from an option 51C/61C/81/81C

It may be necessary to remove a group, or groups, from your system after original installation. Refer to the *System installation* NTP for cabling and general installation information. Follow these steps to remove the groups from the software.

- 1 Disable any peripheral or network devices connected to the groups being removed.
- 2 Load Overlay 135 and disable the standby port connect to the new group. Switch Cores, then disable the standby port again (was the active one).

LD 135

DIS CNI c s p	Disable the standby CNI port
SCPU	Switch Cores If asked for FORCE, enter Yes.
DIS CNI c s p	Disable the standby CNI port

- 3 Load Overlay 17 and remove (OUT) the active and standby EXT for removed group.
 - 4 Load Overlay 43 and datadump to save the new configuration.
-

Basic Commands

CDSP	Clear maintenance displays.
CMAJ	Clear major alarm, and reset power fail transfer.
CMIN	Clear the minor lamp on a system basis
CMIN ALL	Clear minor alarm indication on all attendant consoles
CMIN c	Clear minor alarm indication on attendant consoles for customer c (not applicable for Release 22)
DIS CNI c s p	Disable the CNI port.
DSPL	Get contents of maintenance display for the active Core.
DSPL ALL	Get contents of maintenance display for the active Core as well as previous 63 displays.
ENL CNI c s p	Enable CNI port.
IDC CNI s	Print the card ID for the CNI on the active side.
IDC CPU	Print card ID for the active Core.
MIDN	Run midnight routines after LD 135 is aborted and TTY is logged out.
SCPU	Switch Cores.
SHDW	Restore redundancy to a system put in single mode by the SPLIT command.
SPLIT	Put a redundant (shadowed) system into single (non-shadowed) mode.
STAT CNI c s p	Get the status of all configured CNIs. (Also prints the Network Group number of both ports on each CNI.)
STAT CPU	Get the status and core numbers for both CPs.
STAT MEM c m	Get status of SIMMs on both CPs.
TEST CNI c s p	Test the CNI port.
TEST CPU	Test the inactive (standby) Core. This command performs NO tests upon the active (primary) Core.
TEST IPB	Test the backplane protocol on the secondary (inactive) Interprocessor Bus. This command does NOT test the primary (active) IPB.
TEST LCD	Test the LCD display on the active CP card.

Option 11C commands

DIS FIL n	Disable fibre optic link n
ENL FIL n	Enable fibre optic link n
LLBK FIL n	Perform local loop back test on fibre optic link n
RLBK FIL n	Perform remote loop back test on fibre optic link n
STAT FIL	Get status of all fibre optic links
STAT FIL n	Get status of fibre optic link n

Alphabetical list of commands

Command	Description	Pack/Rel
CDSP	Clear maintenance displays. This command sets the maintenance display for the primary CP to blank.	basic-18
CMAJ	Clear major alarm, and reset power fail transfer.	basic-18
CMIN	Clear the minor lamp on a system basis.	alarm_filter-22
CMIN ALL	Clear minor alarm indication on all attendant consoles.	basic-18
CMIN c	Clear minor alarm indication on attendant consoles for customer c. (not applicable for Release 22)	basic-18
DIS CNI c s p	<p>Disable the CNI port. Where:</p> <ul style="list-style-type: none"> c = Core number (0 or 1) This must be the standby side. Disable the active side if the CNI is not in service. s = Slot number (8-12) p = Port number (0 or 1) <p>If the P is not entered, both ports, and the card itself are disabled.</p>	basic-18
DIS FIL n	<p>Disable fibre optic link n</p> <p>Where :</p> <p>n = 1 (first expansion cabinet)</p> <p>n = 2 (second expansion cabinet)</p> <p>n = 3 (third expansion cabinet) (Release 24)</p> <p>n = 4 (fourth expansion cabinet) (Release 24)</p>	opt11c-22
DSPL	Get contents of maintenance display for the active Core. If the maintenance display is blank, BLANK is output.	basic-18
DSPL ALL	Get contents of maintenance display for the active Core, and previous 63 displays.	basic-18

ENL CNI c s p Enable CNI port. basic-18

Where: c = Core number (0 or 1) ; s = Slot number (8-12) ;
p = Port number (0 or 1)

If the P is not entered, both ports, and the card itself are enabled. A port cannot be enabled if the card is disabled. Enabling the CNI card will also enable the 3 Port Extender.

ENL FIL n Enable fibre optic link n opt11c-22

Where :

n = 1 (first expansion cabinet)
n = 2 (second expansion cabinet)
n = 3 (third expansion cabinet) (Release 24)
n = 4 (fourth expansion cabinet) (Release 24)

IDC CNI s Print the card ID for the CNI on the active side. Where: s = Slot number (8-12). The printout appears in the following format: basic-18

x y ppppppppaa rrssss cccccc

Where:

- x = Core number (0 or 1)
- y = Slot number (8-12)
- pppppppp = PEC code
- aa = Attribute code
- rr = Release number
- ssss = Serial number
- cccccc = Comments (optional)

IDC CPU Print card ID for the active Core. The printout appears in the following format: basic-18

x y pppppppppp rrssss cccccc

Where:

- x = Core number (0 or 1)
- y = Slot number (8-12)
- pppppppppp = PEC code
- rr = Release number
- ssss = Serial number
- cccccc = Comments (optional)

LLBK FIL n	<p>Perform local loop back test on fibre optic link n (link must be disabled)</p> <p>Where :</p> <p>n = 1 (first expansion cabinet)</p> <p>n = 2 (second expansion cabinet)</p> <p>n = 3 (third expansion cabinet) (Release 24)</p> <p>n = 4 (fourth expansion cabinet) (Release 24)</p>	opt11c-22
MIDN	Run midnight routines after LD 135 is aborted and TTY is logged out.	basic-18
RLBK FIL n	<p>Perform remote loop back test on fibre optic link n (link must be disabled)</p> <p>Where :</p> <p>n = 1 (first expansion cabinet)</p> <p>n = 2 (second expansion cabinet)</p> <p>n = 3 (third expansion cabinet) (Release 24)</p> <p>n = 4 (fourth expansion cabinet) (Release 24)</p>	opt11c-22
SCPU	<p>Switch Cores.</p> <p>This command causes the inactive CP to become active. If the switchover is successful, OK is printed. If it is not successful, an error message is printed.</p> <p>If, when attempting to switch CPs, the system determines the currently active side is better than the standby side, a message appears on the TTY:</p> <p>"FORCE</p> <p>Enter <YES> to force SCPU to standby Core x. Press <Return> to abort SCPU."</p> <p>Entering Yes continues the switch. Entering a Carriage Return <CR> defaults to No and retains the currently active side.</p>	basic-18
SHDW	<p>Restore redundancy to a system put in single mode by the SPLIT command.</p> <p>This command cannot be used unless the system is already SPLIT. This command MUST be entered by the CPIO port on the secondary CP.</p>	basic-18

LD 135

SHDW puts the secondary CP to "sleep." Once the secondary CP is asleep, the primary CP begins the process of updating the secondary CP's memories so they match the primary CPs.

SHDW does NOT synchronize the contents of the CMDUs. Use LD 137 to synchronize the CMDUs. When implementing this command, the following is output:

WARNING: CP x will be put to SLEEP.

Enter <YES> to continue, or press <return> to abort.

SPLIT

Put a redundant (shadowed) system into single (non-shadowed) mode.

basic-18

The active Core remains active. Use this command for parallel reload, and for diagnostics requiring split mode operation. Additionally, the standby (inactive) Core "wakes up" and does a system level INIT.

When the command is successful, OK is printed. If it is not successful, an error message is printed.

This command has the same effect as putting both Cores into MAINT.

If a terminal is connected to the secondary Core's CPIO port, OS level startup messages appear as well as INI messages. This is not an error, and is operating according to design.

If the disks are not synchronized, the command aborts, and an error message appears.

STAT CNI c s p Get the status of all configured CNIs. (This command also prints the Network Group number of both ports on each CNI.) basic-18

To get the status of a specific CNI port, enter the following information. Entering only STAT CNI gets the status for all CNI ports.

Where: c = Core number (0 or 1) ; s = Slot number (8-12) ;
p = Port number (0 or 1).

If the P is not entered, the status of both ports is printed.

If the status is DSBL (Disabled), one or more of the OOS reasons may appear. What actually appears are the numbers associated with the OOS text.

- 0 = CP local bus parity threshold exceeded
- 1 = CP card HPM timeout threshold exceeded
- 8 = Unconfigured CNI card
- 9 = Port has been disabled by craftsperson
- 10 = Device is not accessible
- 16 = CNI to 3PE cable 1 on specified card and port lost
- 17 = CNI to 3PE cable 2 on specified card and port lost
- 18 = 3PE power lost
- 19 = 3PE has been manually disabled
- 20 = CNI card has been manually disabled
- 21 = Card test failed
- 22 = Port test failed
- 23 = Extender disabled by Meridian 1 initialization
- 24 = Port interrupt line 0 disabled
- 25 = Port interrupt line 1 disabled
- 26 = Port interrupt line 2 disabled

STAT CPU	<p>Get the status and core numbers for both CPs. Possible responses are:</p> <ul style="list-style-type: none">• ENBL = CP is running• IDLE = CP is in standby• DSBL = CP is disabled <p>If the status is DSBL, one of the following OOS reasons is printed:</p> <ul style="list-style-type: none">• 0 = CP card local bus parity threshold exceeded• 1 = CP card sanity timeout threshold exceeded• 10 = Secondary CP is not accessible• 16 = Secondary CP has a major fault <p>This command also prints out the results of the latest self-test, and the position of the MAINT/NORM switch.</p>	basic-18
STAT FIL	<p>Get status of all fibre optic links.</p> <p>Link status may be ENBL (enabled), DSBL (disabled), LLBK (local loop back mode) or RLBK (remote loop back mode)</p>	opt11c-22
STAT FIL n	<p>Get status of fibre optic link n</p> <p>Where :</p> <p>n = 1 (first expansion cabinet) n = 2 (second expansion cabinet) n = 3 (third expansion cabinet) (Release 24) n = 4 (fourth expansion cabinet) (Release 24)</p>	opt11c-22
STAT MEM c m	<p>Get status of SIMMs on both CPs.</p> <p>To get the status of a single SIMM, or a specific side, enter the following information. Where:</p> <ul style="list-style-type: none">• c = Core (0 or 1)• m = SIMM number (0-5) If m is not entered, status for all SIMMs is printed. <p>If the status is Disabled (DSBL), the device is not accessible</p>	basic-18

TEST CNI c s p

basic-18

Test the CNI port. Where:

- c = Core number (0 or 1)
- s = Slot number (8-12)
- p = Port number (0 or 1) If the P is not entered, both ports are tested.

This command can test Standby CNIs as well as active CNIs that are out of service.

This may take a few minutes because of the time required to reestablish memory shadowing and contents. When the command is successful, OK is printed. If it is not successful, an error message is printed.

TEST CPU

Test the inactive (standby) Core. This command performs NO tests upon the active (primary) Core.

basic-18

The CMB (on the CP card), CP to CP cable, and memory are sure that Split mode can be entered safely. Then the CP is tested. The system enters split mode, runs the test, and returns to redundancy (memory shadowing).

This may take a few minutes because of the time required to reestablish memory shadowing and contents. It is possible, during the test, that service may be interrupted if an error occurs on the single active Core.

Output from this test is "OK," or a CCED message. Refer to the specific message for more information.

Testing the secondary (inactive) Core is done by performing a "reset" on the secondary Core. If a terminal is connected to the secondary Core's CPIO, cold start diagnostics are displayed on the terminal. This is not an error, and is operating according to design.

TEST IPB

Test the backplane protocol on the secondary (inactive) Interprocessor Bus. This command does NOT test the primary (active) IPB.

basic-18

The system enters split mode, runs the test, and returns to redundancy (memory shadowing). When the command is successful, OK is printed. If it is not successful, an error message is printed.

LD 135

This may take a few minutes because of the time required to reestablish memory shadowing and contents. It is possible, during the test, that service may be interrupted if an error occurs on the single active Core.

TEST LCD

Test the LCD display on the active CP card. The following test pattern is displayed on the active CP card's display:

basic-18

- 88888888888888888888
- 88888888888888888888
- ABCDEFGHIJKLMNOP
- QRSTUVWXYZ123456
- abcdefghijklmnop
- qrstuvwxyz012345

The first two tests go by very quickly, so you may actually see only the third one.

Issued:	June 1999
Status:	Standard
X11 Release:	24

LD 137: Core Input/Output Diagnostic

LD 137 provides IOP and CMDU related diagnostic and maintenance information for Option 11C, 51C, 61C, 81 and 81C machines with X11 Release 18 and later. Some commands in LD 37 can also be used. Refer to that program.

LD 137 provides a means of performing the following functions.

- enabling and disabling the CMDU and IOP cards
- displaying status and card ID for CMDU and IOP cards
- testing the IOP and CMDU (the hard and floppy disk drives are tested)
- testing individual disk drives
- enabling and disabling disk redundancy
- testing SCSI cable connections between IOPs and CMDUs
- testing disk synchronization on file or sector levels
- during midnight routines performs DATA CMDU, DATA RDUN commands
- displaying the Security Device Identification of the Security Dongle

The DATA CMDU AND DATA RDUN midnight routines are run every 5 days.

When a status appears disabled, one or more Out of Service (OOS) messages may appear. Listed below are the possible OOS messages:

- IOP out-of-service
- Unexpected interrupt fault monitor threshold exceeded
- Fault interrupt fault monitor threshold exceeded
- Processor exception fault monitor threshold exceeded
- ASIC interrupt fault monitor threshold exceeded
- Unrecognized error fault monitor threshold exceeded
- General event interrupt fault monitor threshold exceeded
- IOP not responding
- IOP disabled by craftsperson
- IOP responding but cannot be enabled
- CMDU out-of-service
- Hard disk read error
- Hard disk write error
- Hard disk drive error
- CMDU does not respond, the disk drive may be missing
- CMDU has been disabled by the craftsperson
- CMDU is disabled because the IOP is out-of-service
- Hard disk is inaccessible
- CMDUs are not synchronized
- CMDU status is mismatched because of a software error
- CMDU is in split mode
- CMDU is out of split mode
- No access to hard disk (HDK)

Basic Commands

DATA CMDU n	Perform read tests on the specified CMDU.
DATA CMDU n HDK, FDK	
	Perform read test on either the Hard Disk or Floppy Disk
DATA RDUN	Perform sector level checking on both hard disk
DIS CMDU n	Disable CMDU.
DIS ELNK	Disable the ethernet link on the active IOP pack
DIS IOP	Disable the active IOP and Ethernet
ENL CMDU n	Enable the CMDU.
ENL ELNK	Enable the ethernet link on the active IOP pack
ENL IOP	Enable IOP on the active Core and Ethernet
ENL HOST n	Add a host to run time host table
IDC	Print the IDs of both CMDUs and the active IOP
IDC CMDU n	Print the ID for the CMDU
IDC IOP	Print out the ID of the active IOP
SDID	Display Security Device Identification of Security Dongle(s)
STAT	Get status of IOPs, CMDUs and Ethernet.
STAT CMDU n	Get status of the CMDU.
STAT ELNK	Display status of the ethernet link on the active IOP pack whether enabled or disabled
STAT HOST	Display current run time host table status
STAT IOP	Display status of the active IOP and Ethernet
SWAP	Swap the CMDUs
SYNC	Synchronize the hard disks on both CMDUs
TEST CMDU n	Perform test for the CMDU.
TEST CMDU n HDK, FDK	
	Perform test on the Hard or Floppy Disk
TEST ELNK INT	Test internal loop-back on Ethernet link
TEST ELNK EXT	Test external loop-back on Ethernet link
TEST ELNK TDR	Test the Time Domain Reflectometry
TEST IOP	Perform the self test on the active IOP
TEST RDUN	Perform file level checking on both hard disks
TEST SCSI	Test the SCSI cables
TTY x	Test TTY x

Option 11C Commands

Command	Description
DIS ELNK	Disable ethernet link
ENL ELNK	Enable ethernet link
STAT	Get status of PPP and ethernet link
STAT ELNK	Display status of ethernet link

Alphabetical list of commands

Command	Description	Pack/Rel
DATA CMDU n	<p>Perform read tests on the specified CMDU.</p> <p>This data validity check is performed on both hard and floppy disks. While the test is in progress, the CMDU is inaccessible. Progress messages are output. n = core number (0 or 1) If n is not entered, this command checks both CMDUs.</p> <p>This is more extensive than the TEST command, and may take longer.</p>	basic-18
DATA CMDU n HDK, FDK	<p>Perform read test on either the Hard Disk or Floppy Disk. This is a data validity check. While the test is in progress, the Disk is inaccessible.</p> <p>Where: n = Core number (0 or 1). You must enter the Core number. This is more extensive than the TEST command, and may take longer.</p>	basic-18
DATA RDUN	<p>Perform sector level checking on both hard disks.</p> <p>This test ensures that disk synchronization (disk redundancy) exists. It can only be performed when disk redundancy is enabled. All data is checked, on both disks, sector by sector. If the test fails, a CIOD message appears, and disk redundancy is disabled.</p> <p>This is more extensive than the TEST command, and may take longer. While this test is in progress, the disks are inaccessible.</p>	basic-18
DIS CMDU n	<p>Disable CMDU. Where: n = Core number (0 or 1). You must enter the Core number.</p> <p>If disk redundancy is currently enabled (both CMDUs are enabled and enabled), disabling the CMDU also disables disk redundancy.</p> <p>The confirmation is displayed:</p> <p>"CURRENTLY CMDU N IS ACTIVE. DISK RDUN WILL BE DISABLED. ENTER Y(ES) TO CONFIRM, N(O) TO ABORT."</p> <p>If the specified CMDU is in standby, its state is changed to disabled. If it is the active CMDU, it is disabled, and the standby CMDU becomes active.</p>	basic-18

DIS ELNK	<p>Disable the ethernet link on the active IOP pack.</p> <p>An attempt is made to disable the Ethernet link. When the link is disabled, all activities will be terminated. The system displays OK to indicate that the link is disabled or FAIL to indicate that the link could not be disabled.</p>	basic-22
DIS IOP	<p>Disable the active IOP and Ethernet. The LED is lit on the IOP faceplate and both CMDUs are inaccessible.</p>	basic-18
ENL CMDU n	<p>Enable the CMDU.</p> <p>Where: n = Core number (0 or 1). You must enter the Core number.</p> <p>When the first CMDU is enabled, that CMDU's state is ACTIVE.</p> <p>If a second ENL CMDU is attempted, a file level synchronization on both hard disks is performed first. If the synchronization (disk redundancy) does not exist, a CIOD error message is printed, and the second CMDU remains disabled.</p> <p>If the synchronization exists, the confirmation is displayed:</p> <p>"DISK RDUN WILL BE ENABLED, ENTER Y(ES) to CONFIRM, N(O) TO ABORT."</p> <p>When disk redundancy is successful, both CMDU states are Enabled. The CMDU enabled first is active, and the second is standby.</p>	basic-18
ENL ELNK	<p>Enable the ethernet link on the active IOP pack.</p> <p>If the Ethernet link is down, entering this command will cause an attempt to restore the Ethernet link to normal operation state. However, if the system cannot successfully restore the link, the Ethernet link will remain disabled.</p> <p>If the link was already up, this command does not affect the current operation of it. The system displays OK to indicate that the link is now enabled or FAIL to indicate that the link could not be enabled.</p>	basic-22
ENL HOST n	<p>Add a host to run time host table.</p>	basic-22

ENL IOP	<p>Enable IOP and Ethernet on the active Core.</p> <p>The LED is turned off on the IOP faceplate. The CMDUs are restored to the state they were in prior to the IOP being changed. However, if the cable between the IOPs is not connected, the CMDUs remain inaccessible until the cable is reattached.</p> <p>If both CMDUs were enabled, a file level synchronization check is performed prior to restoring states. If the synchronization (disk redundancy) does not exist, only the previously active CMDU is enabled.</p>	basic-18
IDC	<p>Print the IDs of both CMDUs and the active IOP. The printout appears in the following format:</p> <pre>pppppppppp rrssss cccccccc</pre> <p>Where:</p> <ul style="list-style-type: none"> • pppppppppp = PEC code • rr = Release number • ssss = Serial number • cccccccc = Comments (not always be present) 	basic-18
IDC CMDU n	<p>Print the ID for the CMDU. Where: n = Core number (0 or 1). If n is not entered, card ID information is printed for both CMDUs.</p>	basic-18
IDC IOP	<p>Print out the ID of the active IOP.</p>	basic-18
SDID	<p>Display Security Device Identification of Security Dongle(s)</p>	basic-23
STAT	<p>Get status of IOPs, CMDUs and Ethernet.</p> <p>For the IOP, the Enabled or Disabled, and Active or Standby state is printed. Status is given for active and standby IOPs. For the CMDU, Disk redundancy, enabled/disabled, and active/standby status are printed. If Ethernet is disabled, the status (enabled or disabled) is displayed along with an OOS message.</p> <p>The status given for the standby IOP is a software status as it was last seen when that IOP was active. No hardware status is given because the standby IOP cannot be accessed.</p> <p><i>For Option 11C:</i> The STAT command is used to get status of PPP and ELNK.</p>	basic-18

If the status of the IOP or CMDU is disabled, one of the following OOS messages may appear:

- IOP out-of-service
- Unexpected interrupt fault monitor threshold exceeded
- Fault interrupt fault monitor threshold exceeded
- Processor exception fault monitor threshold exceeded
- ASIC interrupt fault monitor threshold exceeded
- Unrecognized error fault monitor threshold exceeded
- General event interrupt fault monitor threshold exceeded
- IOP not responding
- IOP disabled by craftsperson
- IOP responding but cannot be enabled
- CMDU out-of-service
- Hard disk read error
- Hard disk write error
- Hard disk drive error
- CMDU does not respond, the disk drive may be missing
- CMDU has been disabled by the craftsperson
- CMDU is disabled because the IOP is out-of-service
- Hard disk is inaccessible: CMDUs are not synchronized
- CMDU status is mismatched because of a software error
- CMDU is in split mode
- CMDU is out of split mode
- No access to hard disk (HDK)

STAT CMDU n Get status of the CMDU. Where: n = Core number (0 or 1).
If n is not entered, the status for both CMDUs is printed.

basic-18

If the CMDU is disabled, one of the following CMDU OOS reason may appear:

- Hard disk read error
- Hard disk write error
- Hard disk drive error

- CMDU does not respond, the disk drive may be missing
- CMDU has been disabled by the craftsperson
- CMDU is disabled because the IOP is out-of-service
- Hard disk is inaccessible
- CMDUs are not synchronized
- CMDU status is mismatched because of a software error
- CMDU is in split mode
- CMDU is out of split mode
- No access to hard disk (HDK)

STAT ELNK Display status of the ethernet link on the active IOP pack basic-22
 whether enabled or disabled. The Ethernet address of this
 active Input Output Processor (IOP) is also displayed.

Since the Local Area Network Controller for Ethernet (LANCE)
 is equipped on the IOP, LANCE will be disabled when the IOP is
 disabled.

If the ethernet link is disabled, an OOS reason will be displayed
 containing the following information:

```

ELNK           ENABLED
Ethernet (In unit number 0):
Host: aaaxxx
Internet address: xx.xxx.xx.xxx
Netmask: xxxxxxxxxx ; Subnetmask: xxxxxxxxxx
xxx packets received ; xxx packets sent
x input errors ; x output errors
x collisions
  
```

STAT HOST Display current run time host table status. basic-22

STAT IOP Display status of the active IOP and Ethernet. basic-18

This command prints out the status whether the IOP is enabled
 or disabled. If it is disabled, the OOS reasons are printed. The
 following IOP OOS messages may appear:

- IOP out-of-service
- Unexpected interrupt fault monitor threshold exceeded
- Fault interrupt fault monitor threshold exceeded
- Processor exception fault monitor threshold exceeded

- ASIC interrupt fault monitor threshold exceeded
- Unrecognized error fault monitor threshold exceeded
- General event interrupt fault monitor threshold exceeded
- IOP not responding
- IOP disabled by craftsperson
- IOP responding but cannot be enabled

SWAP Swap the CMDUs. basic-18

After this command is issued, the active CMDU becomes standby, and the standby CMDU becomes active. This command is performed only when disk redundancy is enabled.

SYNC Synchronize the hard disks on both CMDUs. basic-18

This is a sector level synchronization. It is performed by copying the data from the active CMDU to the disabled CMDU, sector by sector. This can only be done when one CMDU is active and one is disabled.

The confirmation prompt appears when the system is ready to do the copying:

"CMDU n ACTIVE HDK WILL BE COPIED AND DISK RDUN WILL BE ENABLED. ENTER Y TO CONFIRM."

Synchronization may take as long as 40 minutes. Progress reports appear on the TTY periodically.

TEST CMDU n Perform test for the CMDU. basic-18

This test includes a self-test, read/write capability test, and disk access test on both hard and floppy disks for this CMDU. While the test is in progress, the CMDU is inaccessible.

Where: n = Core number (0 or 1). You must enter the Core number.

A disk must be in the floppy drive when this test is run. If the floppy disk is not present, the floppy disk test will fail. The hard disk test will not be affected.

TEST CMDU n HDK, FDK	basic-18
Perform test on the Hard or Floppy Disk.	
This test includes a self-test, read/write capability test, and disk access test on either the hard or floppy disk drive for this CMDU. While the test is in progress, the CMDU is inaccessible.	
Where: n = Core number (0 or 1). You must enter the Core number.	
A disk must be in the floppy drive to test it. If a floppy disk is not present, the floppy disk test will fail. The hard disk test will not be affected.	
TEST ELNK EXT	basic-22
Test the external-loop back on Ethernet link.	
The result displayed can be either: PASS or FAIL. A pass indicates that the system can transmit its own transmitted packet and a fail means the opposite.	
TEST ELNK INT	basic-22
Test the internal-loop back on Ethernet link.	
The result displayed can be either: PASS or FAIL. A pass indicates that the system can receive its own transmitted packet and a fail means the opposite.	
TEST ELNK TDR	basic-22
Test the Time Domain Reflectory	
The displayed result is used to determine the location of suspected cable faults. A confirm message is displayed to ask the user to enter YES or NO. The entry YES tells the system to stop the Ethernet communication and perform a DTR. The entry NO tells the system to ignore the command.	
The Ethernet link remains disabled after this test. The user must enable it by command ENL ELNK.	
TEST IOP	basic-18
Perform the self test on the active IOP and internal loop-back test on Ethernet. The IOP must be disabled to perform this test.	
TEST RDUN	basic-18
Perform file level checking on both hard disks.	
This test ensures that disk synchronization exists. It can only be performed when disk redundancy is enabled. If the test fails, a CIOD message appears, and disk redundancy is disabled.	
While this test is in progress, the disk is inaccessible.	

TEST SCSI Test the SCSI cables. basic-18

This test ensures the cable connections between the IOPs are present. Access to the CMDUs is tested as well.

If the test is successful, OK is printed. If the test is unsuccessful, CIOD messages are printed to indicate the problem.

TTY x Test TTY x. Response is: basic-18

ABCDEFGHIJKLMNOPQRSTUVWXYZ

0123456789"#\$%*!&()<>-.:,.? READY FOR INPUT

Anything entered on the keyboard will be echoed until END is input.

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LD 143: Customer Configuration Backup and Restore

X11 Release 23 introduces the Keycode Management feature for customers with the Input/Output Disk Unit with CD-Rom (IODU/C). Previously, a Keycode was stored on two devices: a Security Cartridge and a Direct.rec file.

With X11 Release 23, however, a Keycode is a “soft” entity that resides on a customer’s hard disk. A Keycode can be delivered, replaced, upgraded, and downgraded.

All Keycode Management commands are executed in Overlay 143.

Basic commands

ABKO	Attended Backup
ARES	Attended Restore
HELP	View overlay commands on terminal
KDIF k1 k2	Print the differences between two specified keycodes
KMAN	Manually introduce the keycode the same way as form the Installation Tools
KNEW d r	Check and accept new keycode file
KOUT	Delete "keycode.new" file
KRVR d r	Revert the current keycode.rec and keycode.old files
KSHO k	Show content of the currently used keycode file and the differences with the rest of keycode files
KSTT	Print the status of a new (trial) keycode (if any).
KUPL	Upload keycode command.
UPGRADE	Perform Option 11C upgrade
XBK	Remote backup database
XRT	Remote restore database
XSL	Remote sysload the system
XVR	Remote verify database

Alphabetical list of commands

Command	Description	Pack/Rel
ABKO	Attended Backup. EDD and BKO commands are enhanced to indicate lack of space or other obstacles to perform required backup. In case of failure, an Attended Backup is suggested.	basic-23
ARES	Attended Restore. Attended Database Restore is an interactive process very similar to the existing Install procedure. Installer is prompted to install Database floppies in appropriate order. Note that the identical procedure is used during upgrade of large customer IODU/C machine assuming that Amber will generate multiple 2MB floppies with customer's Database.	basic-23
HELP	View overlay commands on terminal	basic-23
KDIF k1 k2	Print the differences between two specified keycodes. Where k1 and k2 may have one of the following values: <ul style="list-style-type: none"> • PEND: pending keycode which is searched for in "/f0", if not found, in "/f1" and finally in "/u" • CURR: current keycode which can be either keycode.rec or keycode.new, both residing in "p/install" on user's hard disk • REC: keycode.rec file residing in "/p/install" on user's hard disk • OLD: keycode.file residing in "/p/install" on user's hard disk • NEW: keycode.new file residing in "/p/install" on users hard disk 	basic-23
KMAN	Manually introduce the keycode the same way as form the Installation Tools. The user must input 20 lines, each line containing 16 characters to create a keycode. The "end" string notifies the end of keycode creation. On the 21st line it marks keycode completion; on any other line, it the keycode creation is abandoned.	

KNEW d r	<p>Check and accept new keycode file. The new keycode will be activated by the first restart and will become permanent keycode on the d-th midnight unless r restarts occur before.</p> <p>With Release 24 and later, the KNEW command allows changes to ISM parameters and feature packaging to be instantly activated without Sysload. The following message is output:</p> <p style="padding-left: 40px;">CCBR020 New Keycode accepted and activated successfully. Sysload is NOT needed!</p>	basic-23
KOUT	Delete "keycode.new" file.	basic-23
KRVR d r	<p>The old keycode is reverted to current keycode. Where, the old keycode will be activated by the first restart and will become permanent keycode on the D-th midnight unless r restarts occur before.</p> <p>Note: Using the KRVR command without parameters implies that the old keycode will be activated and become the permanent keycode after the first restart.</p> <p>With Release 24 and later, the KRVR command will instantly activate the Old Keycode if the only difference between the Old Keycode (Keycode.old) and the new Keycode (Keycode.rec) is that some or all of the ISM parameters in the Old Keycode are higher.</p> <p>After the KRVR command has been entered, the following new message is printed if the system has instantly activated the Old Keycode:</p> <p style="padding-left: 40px;">CCBR020 New Keycode accepted and activated successfully. Sysload is NOT needed!</p>	basic-23
KSHO k	<p>Print the content of the currently used keycode file and the differences with the rest of keycode files.</p> <p>Where k may have one of the following values:</p> <ul style="list-style-type: none">• PEND: pending keycode which is searched for in "/fo", if not found, in "/f1" and finally in "/u"• CURR: current keycode which can be either keycode.rec or keycode.new, both residing in "/p/install" on user's hard disk• REC: keycode.rec file residing in "/p/install" on user's hard disk• OLD: keycode.old file residing in "/p/install" on user's hard disk• NEW: keycode.new file residing in "/p/install" on user's hard disk	basic-23

KSTT	Print the status of a new (trial) keycode (if any).	
KUPL	Upload keycode command. In the Meridian 1 system window, paste the new keycode after the Upload keycode prompt. Pressing enter will upload the keycode and initiate validation.	
UPGRADE	Perform Option 11C upgrade. This command invokes the Install Setup Program. To perform an installation, the installer inserts a Software Delivery Card in the PCMCIA slot on the System Core Card. Then, on TTY 0, the installer may invoke the Setup Program by using the UPGRADE command in LD 143. If the installation was invoked in LD 143, the system reboots and automatically runs the Loader Program. With Release 24 and later, the UPGRADE command allows changes to ISM parameters and feature packaging to be instantly activated without Sysload upon keycode acceptance. The following message is output: Upgrade was completed and activated successfully. Sysload is NOT needed!	opt11c-22
XBK	Remote backup database Backup the configuration files from the primary flash drive of the Option 11C system onto a computer.	opt11c-22
XRT	Remote restore database Restore the files from a computer into the primary flash drive of the Option 11C system.	opt11c-22
XSL	Remote sysload the system Sysload the Option 11C system from the primary flash drive.	opt11c-22
XVR	Remote verify database Verify the files on a computer with the files in the primary flash drive of the Option 11C system.	opt11c-22

Meridian 1
Software Input/Output Guide
X11 Maintenance

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NORTEL
NETWORKS™

How the world shares ideas.

SOFTWARE
CONVERSION
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Meridian 1

Software conversion procedures

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Standard, release 20.00. This document is reissued to include information on the NT5D03 Call Processor card.

June 1999

Standard, release 21.00. This document is reissued to include information on automatic inline conversion from release 19 or later to release 24.

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Introduction

This document explains how to perform the following:

- convert an X11 software release to a higher release
- convert software upissues within a single release
- perform parallel reloads for NT, RT, and XT, and system options 61, 61C, 71, 81, and 81C
- perform memory upgrades

THIS DOCUMENT IS FOR SOFTWARE CONVERSION AND MEMORY UPGRADES ONLY. The procedures in this document are not for any other purpose.

Specific machine types, as they are supported by X11 software releases, are shown in Table 9.

CAUTION

Do not convert a system unless you are thoroughly familiar with it and with conversion procedures. You must read through the procedure before starting.

Note: Converting software on single CPU systems disrupts call processing and allows service only to those telephones connected to Power Failure Transfer Units (PFTUs). Established calls may not be affected.

CAUTION

To avoid damaging equipment from electrostatic discharge, wear a properly connected anti-static wrist strap when working on Meridian 1 equipment.

To convert software on dual CPU systems with minimum disruption to call processing, use the parallel reload method in "Procedure 6: Performing a parallel reload" on page 101. If upgrading to X11 release 18, use "Procedure 7: CD-ROM software conversion" on page 131.

Follow Pre-conversion and Post-conversion procedures for every system conversion.

Throughout this document the term **media** refers to tape, disk, or CD-ROM, whichever applies to your system.

The term **Source** refers to the software that you are **currently** running. **Target** refers to the new software that you are converting to.

CAUTION

Read "Conversion notes" on page 5 before performing any operations.

It contains information crucial to the conversion process.

Related documentation

The following documents may be required when performing upgrades.

- *Product compatibility* (553-3001-156)
- *Upgrade system installation through X11 release 21* (553-3001-250)
- *Upgrade system installation to X11 release 24* (553-3001-258)
- *Disk drive upgrade procedures* (553-3001-251)
- *X11 features and services*
- *X11 input/output guide*
- *NT5D61 IODU/C Reference guide*
- *General Release Bulletins* provide hardware requirements and advisory notes for a given software release.

Conversion notes

Conversion procedures vary with the system type and **Source** release of software.

Table 1 shows the X11 releases supported by Automatic Inline Conversion.

Table 1
Automatic Inline Conversion

From (minimum) Source release/issue	Directly to Target release
10.xx	14, 15
11.xx	12, 13, 14, 15
12.xx	13, 14, 15
13.xx	14, 15
14.xx	15
15.xx	16, 17, 18
16.xx	17, 18
17.xx	18, 19
18.xx	19
19.xx	20, 21, 22, 23, 24
20.xx	20, 21, 22, 23, 24
X81 Phase 7 A, B, or C	20, 21, 23, 24
X81 Phase 8, A0, A1& A2	20, 21, 23, 24

Table 1
Automatic Inline Conversion (Continued)

From (minimum) Source release/issue	Directly to Target release
X81 Phase 8, B0, B1& B2	20, 21, 23, 24
21.xx	22, 23, 24
22.xx	23, 24
23.xx	24
Note: To convert to X11 release 12 or 13 from X11 release 10, you must go through X11 release 11. X11 release 11 is used to support Automatic Inline Conversion from X11 release 10 only. It is not a serviceable software release.	

Note that, unlike previous releases, X11 release 10 offers Automatic Inline Conversion to release 15. It is no longer necessary to step up through each release.

To convert to a release higher than X11 release 15, you must convert to X11 release 15 first. You cannot, for example, go directly from X11 release 10 to X11 release 16. You must be operating on X11 release 17 before converting to X11 release 19 or higher. For example, X11 release 16 cannot be converted directly to X11 release 19, it must be converted to X11 release 17 first.

Conversions may require any of the following hardware changes:

- upgrade from tape drive to disk drive (X11 release 10 and higher)
- 3.5-inch, 2 MB, High Density (HD) floppy disks (X11 release 15 through X11 release 17)
- 3.5-inch, 4 MB, Extra High Density (ED) floppy disks (X11 release 18 and later)
- upgrade from floppy disk unit (FDU) to small system multi disk unit (SMDU) in option 21E and STE systems
- replacement of security data cartridge for systems equipped with disks (A different cartridge is required for each intermediate release.)

- replacement of ROM daughter board for intermediate or Target release (See the ROM chart in “Procedure 9: Install a new Read Only Memory card” on page 163.)
- installation of new memory cards

It may be more time- and cost-effective to simply load new software and reenter system data, rather than going through all the procedures that a conversion requires. To determine the best option and how to take advantage of Target software features and services, consult your Northern Telecom representative.

CAUTION

Always load LD 43 from the **Source** (current) media. That is, the media containing the software currently running your system.

Conversion media

Northern Telecom supplies tapes, disks, or CD-ROM depending on system requirements, for conversion to a higher software release. If required, software for intermediate releases is also included. You do not need both tape and disk, except when upgrading from tape drive to disk drive.

If Automatic Inline is supported for your conversion, the conversion software is included in the **Target** software. Additional conversion media are not required.

The media received contains the conversion program (LD 66) for converting your current data to the format required for the next release. Check the labels on the media for accuracy. The conversion label contains the following information:

X mmm Z nnn where

X = Machine type number (see Table 9)

mmm = **Source** software release and minimum issue

Z = Conversion tape vintage

nnn = **Target** software release and minimum issue

System tape

X11 release 7 and earlier use tape drives as their media. X11 releases 8 and 9 use both tape and disk. The system tapes contain data for all features and services requested by the customer for the new software generic. The tape (as shipped from the factory) does not contain any customer data (for example, line, trunk, or set assignments). Three identical X11 system tapes are supplied to the conversion site.

System disks and data cartridges

For X11 release 10 and later, disk drives are required. Northern Telecom supplies three sets of floppy disks for each system, and one QMM42 data cartridge for each CPU. Software for options 51C, 61C, 81, and 81C include two sets of disks. The disks and data cartridge work for the system specified on the label only, and must match your system ID. These disks and data cartridges cannot be used to upgrade any other system. Each QMM42 Data Cartridge is installed on a QPC584 Mass Storage Interface (MSI), NT9D34 Enhanced Mass Storage Interface (EMSI), or QPC742 Floppy Drive Interface (FDI) card (see "Procedure 8: Installing new data cartridges and option packages" on page 159). In options 51C, 61C, 81, and 81C, the data cartridge is installed on the NT6D63 I/O Processor (IOP) card or NT5D20 IOP/CMDU card.

The data cartridge contains X11 release and software packaging information. If desired, a new option package on the same release may be added by installing a new data cartridge and loading floppy disks that contain the new package. However, the cartridge ID must match the disks installed in the system. A sysload is required to enable new packages.

CD-ROM and security devices

For X11 release 24 systems, the following media is required for new software installations:

- CD-ROM— A generic CD-ROM that contains all 12 software generics.
- Security device — Installed onto the IODU/C card to provide a unique program for each system. The device does not contain feature or software release specific information.
- Install diskette — Activates the Software Installation Tool. The Software Installation Kit contains three Install diskettes to support each Call Processor card (68060 and 68060E). Use the Install diskette that corresponds with your CP card type.
- Keycode diskette — Consists of “keycodes” that contain software feature data. The keycodes must validate against the security device.
- 2 MB customer database diskettes —A blank DOS formatted disk for archiving the customer database.
- Database transfer utility diskette — Supports the transfer of 4 MB databases to 2 MB. The Database Transfer utility is used with option 51C, 61C, 81, and 81C databases only.

The keycode contains the X11 software information. For new features or Incremental Software Management (ISM) limits, a new keycode is required (a new CD-ROM, security device, or install diskette is not required).

Software packaging

Remember to check your system packages prior to conversion. Be sure **Target** software contains all the packages required to support system operation.

General conversion information

This document supports conversions for ST, STE, NT, RT, XT, 21, 21E, 51, 51C, 61, 61C, 71, 81, and 81C systems only.

Note: Conversion from X37 to X11 is not supported.

Be sure your system has enough memory to complete the conversion. If not, go to "Procedure 10: Increasing memory" on page 169 **before you begin**. Refer to *Meridian 1 capacity engineering* (553-3001-149) for details concerning system capacity requirements.

To monitor the CPUs during parallel reload procedures, install a temporary Serial Data Interface (SDI) card, and connect a local TTY (or modem for remote TTY access). Refer to the parallel reload procedures for more information.

In systems equipped with superloops, calls will drop during initialization when Peripheral Software Download (PSDL) occurs. The Superloop Network (NT8D04) and Controller (NT8D01) cards download peripheral software prior to initialization completion. This may extend the duration of the system initialization when completing a conversion.

When a software upgrade is performed to add new feature packages, a sysload or parallel reload is required to enable the new software.

If a Force Download occurs during a parallel reload, initialization can take up to 15 minutes. Calls in process will be interrupted.

When QPC742D FDI Cards are used, install disks in both disk drives before powering up the system. This is not required with later vintages of the FDI card.

If you have Auxiliary Processors working with your system, be sure they are powered up after you complete your conversion.

CAUTION

Do not attempt backward data dumping between software versions, upissues, or releases. It will corrupt your data.

DN Expansion

X11 release 12 to X11 release 13 or higher conversion is designed to convert data blocks with the smaller DN fields on the **Source** disk to data blocks with expanded DN fields, irrespective of the DN Expansion package on the **Target** disk/system.

CDR Expansion is **not** required to enable DN expansion. However, in order for Call Detail Records to accurately reflect system activity, CDR Expansion must be enabled as well as DN Expansion. If DN Expansion is equipped and CDR Expansion is not, system operation is not affected, but CDR records will be inaccurate.

SL-1 STE systems and option 21E

Beginning with X11 release 20B, STE and option 21E systems must be upgraded to a small system multi disk unit (SMDU).

X11 release 21 is the highest supported X11 software release for STE and option 21 systems. The STE, and option 21E, must upgrade to the option 51C or option 61C before converting the customer database to X11 release 24.

SL-1 ST systems

SL-1 ST machines requiring the Memory Expansion capability or ISDN software options must upgrade to the QPC937A or QPC717D ROM card, and to the QPC709D card when loading X11 release 12, 13, or 14. X11 releases 15 through 17 use the QPC940 ROM. The ST machine is supported up to X11 release 17 only.

Note: The ST and 21 machine must be upgraded to STE and 21E (respectively) to support X11 release 18 and later.

Upgrading from tape to disk drives

X11 release 10 requires disk drives. Convert your system from tape drive to disk drive media prior to upgrading to X11 release 10 software.

To convert from X11 release 5 to X11 release 8, you must go through X11 release 7.12 (for MS systems only) and 7.17. From X11 release 5, convert to X11 release 7.12 (on the MS). From 7.12, convert to 7.17. You can then convert to X11 release 8. All other systems can convert from X11 release 5 to X11 release 7.17, then to X11 release 8.

Upgrading from disk drives to CD-ROM

Upgrading a drive unit to CD-ROM requires the existing 4 MB database to be converted to 2 MB. The database is converted to 2 MB is using one of the following methods:

- using the Database Transfer utility (for systems equipped with IOP/CMDU or separate IOP and CMDU cards only)
- using the direct cabling method (for systems equipped with MDU or SMDU and EMSI cards)
- using the “Copy Database from Redundant Disk” command in the Meridian 1 Software Installation Tool (for redundant systems equipped with IOP/CMDU or separate IOP and CMDU cards)

Integrated Services Digital Network (ISDN)

Any ISDN site upgrading to X11 release 15 or higher must be configured with the QPC757 vintage C, D-Channel Handler (DCHI) card.

When performing a parallel reload, ISDN Primary Rate Interface (PRI) calls are dropped during initialization of **Target** software.

X11 release 18 and later support the NT6D80 Multi-purpose Serial Data Link (MSDL) card for D-channel interfaces.

X11 release 18 and later do not support even numbered port assignments on the NT6D11 International ISDN D-Channel card. The even port assignments must be updated to odd port assignments in LD 17 prior to converting. If not done, the D-channel will not be reestablished after service change. Only QPC757 D-Channel mode is supported.

Options 51C, 61C, and 81 require clock controller QPC471 vintage H or later, or QPC775 vintage C or later.

Option 81C requires clock controller QPC471 vintage H or later, or QPC775 vintage E or later.

ISDN Calling Line ID (CLID) enhancements

The Calling Line ID Enhancements feature delivers enhanced functionality pertaining to the construction and generation of Calling Line ID, and allows more program flexibility for Meridian 1 sets pertaining to CLID.

Prior to X11 release 22, CLID supported a single Listed Directory Number (LDN), a single Home NXX, and single Home Location Code. The Calling Line ID was built from key 0 of a set, or the LDN.

The CLID enhancement parameters have been enhanced to include multiple NXXs, multiple Home Locations Codes (HLOCs), multiple Numbering Plan Areas (NPAs), multiple Local Steering Codes (LSCs), and multiple Listed Directory Numbers (LDNs). The calling Line ID enhancement now allows more flexible CLID generation than prior releases.

With the CLID Enhancement feature, the system now supports:

- A new table driven feature with up to 4000 entries.
- Any entry number can be programmed against any DN on a per DN basis.
- Existing LDN can be used on a per DN key, per set basis.
- The existing Individual Directory Number (IDN) key of an ACD set can be sent as the CLID.
- The active DN key determines the CLID that is sent for conference and transfer.
- Supports the flexibility of 2-3 or 5-7 digits DNs.

During conversion, two CLID entries (0 and 1) are created in the customer data block. The entries are configured with ISDN CLID information from the existing customer data block, such as HNPA, HNXX, HLOC, etc. Entry 0 is used for the keys/sets that have a DID number. Entry 1 is used for the keys/sets that do not have a DID number.

Refer to *X11 features and services* for more information on the CLID Enhancement feature.

Converting ISDN systems

New software may contain changes to the ISDN D-Channel parameters that are downloaded to the DCHI or MSDL card. The system software automatically downloads the new parameters upon SYSLOAD if a parallel reload is not performed.

When performing a parallel reload, and switching to the second CPU, software- and hardware-disable and reenable all DCHI cards to ensure parameter downloading with X11 release 16 and earlier.

Ensure that the Release ID in the D-channel parameters (LD 17) at the far end is changed to the lowest release in your site configuration.

When a DCHI port is configured as a TTY port, INI messages may be truncated when printed after sysload. System performance is not affected, but you should view your history file for the entire message.

D-Channel monitor

When the D-channel monitor is software-enabled and deactivated with a maintenance telephone, a data dump and sysload reactivate the monitor. To avoid this situation, software-disable the D-channel monitor prior to datadump and sysload.

Incremental Software Management

Incremental Software Management (ISM) defines the maximum number of Terminal Numbers, Automatic Call Distribution (ACD) Directory Numbers, ACD positions (agents and supervisors), and AST sets allowed in a system. Before upgrading to X11 release 15.55 or higher, read the ISM section in *X11 features and services*.

With X11 release 17, ACD AST sets are configured individually in LD 10 and LD 11. When you are upgrading to X11 release 17, you must reenter your AST sets manually into the database in LD 10 and LD 11 because they will be lost during conversion.

X11 release 18 and later include D-channels (DCH), Application Module Links (AML), Digital Subscriber Loops (DSL), and Logical Terminal Identifier (LTID).

X11 release 19 and later include Meridian Packet Handlers (MPH) as part of ISM tracking.

Note: DSL, LTID, and MPH are part of ISDN Basic Rate Interface (BRI). Refer to *ISDN Basic Rate Interface product description* (553-3901-101) for more details.

CAUTION

System information will be lost.

With Incremental Software Management (ISM) in X11 release 15.55 and higher, if SYS message 4327, 4328, 4329, or 4330 appears at sysload. Reload **Source** system disks. Order ISM disks with sufficient system parameters configured.

Patches

For option 51C, 61C, 81, and 81C systems, **patches are deleted** when converting to a new X11 software release, or when performing a software upissue. Software **patches are not deleted** when the same software release is reinstalled in the system.

For STE, option 21, 21E, 51, 61, and 71 systems running 15.53, 14.41, or earlier, patches must be removed prior to converting. Data corruption may occur if you do not remove the patches prior to conversion.

For STE, option 21, 21E, 51, 61, and 71 systems running release 16.65 and later, patches do not need to be removed prior to conversion. During a data dump (EDD), an EHM500 message prints out, rather than patch numbers, indicating existing patches will not be saved on **Target** media.

If a patch is included in your software, a plus sign (+) will appear next to the software issue number in LD 22.

Automatic Trunk Maintenance (ATM)

When converting X11 release 7 (prior to issue 7.09) to X11 release 8, ATM data must be removed prior to conversion, then restored after conversion.

Command Status Link (CSL)

When converting X11 release 8 (prior to issue 8.25) to X11 release 9, the Data Service DNs (DSDN) must be removed prior to conversion, then restored after conversion. Contact your Technical Support personnel to remove the DSDNs. To determine whether or not you have DSDNs, check in LD 22.

LD 22

REQ PRT

TY DSDN

PE

CUST <cr>

DN <cr>

Converting X09 to X11 release 2

Automatic Route Selection (ARS) on X09 is replaced by BARS or NARS in X11. Due to the differences between the ARS and BARS data structures, complete data conversion is not supported. You can either convert the ARS data to BARS data and modify the resulting BARS data structure, or not convert ARS data at all and input completely new BARS data.

To deny conversion of ARS data to BARS data, input the command CDD BLD in LD 66.

An upgrade from X09 to X11 release 2 requires the X966Z205 conversion tape.

Conversion notes by release

X11 release 10

X11 release 10 requires disk drives. Convert your system from tape drive to disk drive media prior to upgrading to X11 release 10 software. Refer to "Conversion notes by release" on page 17 for the list of conversion packages and supported releases.

Refer to *Disk drive upgrade procedures* (553-3001-251) for complete instructions concerning tape to disk drive upgrades.

The following conversion software is required when upgrading to X11 release 10. Check your conversion media to be sure it is correct. You must have all the conversion software between your current release and X11 release 10 as well as the system software required for each release. For example, if you are running on X11 release 7, you must have conversion packages and the system media for X11 releases 8, 9, and 10.

- X11 release 2 to X11 release 3 conversion: X205B301
Must be 2.05 or later
- X11 release 3 to X11 release 4 conversion: X306A401
Must be 3.06 or later
- X11 release 4 to X11 release 5 conversion: X416C502
Must be 4.16 or later
- X11 release 5 to X11 release 7 conversion: X516CR7
Must be 5.16 or later
- X11 release 7 to X11 release 8 conversion: X709B810
Must be 7.09 or later
For system type 711, use 7.12 to 7.17 to X11 release 8.
- X11 release 8 to X11 release 9 conversion: X826A901
Must be 8.26 or later
- X11 release 9 to X11 release 10 conversion: X903B1009
Must be 9.03 or later

X11 release 11

This is not a serviceable release. The media for X11 release 11 is required for upgrading from X11 release 10 to release 12 or 13.

X11 release 12

Conversion to X11 release 12 requires the following software conversion media and site transition media:

- X11 release 10 to X11 release 11 conversion disk X1009A1120
- X11 release 11.20 site transition disk

SL-1 ST machines requiring the Memory Expansion or ISDN must upgrade to the new ROM card, QPC717D and QPC709D, when loading X11 release 12 through 14 software.

X11 release 13

Once a system has been converted to either X11 release 11 or 12, Automatic Inline Conversion takes place during conversion sysload.

X11 release 14

X11 release 14 supports Automatic Inline Conversion from X11 release 10, 12, and 13. Automatic Inline Conversion takes place during conversion sysload.

X11 release 15

X11 release 15 is a hardware breakpoint. It requires a new ROM card, and 3.5-inch 2 MB, High Density (HD) disks. It also introduces Meridian 1 system options 21, 51, 61, and 71. Refer to *Meridian 1 system overview* (553-3001-100) for complete information. It is imperative that ALL software and hardware requirements are met.

X11 release 16

You *must* be running X11 release 15 before upgrading to X11 release 16.

XT and 71 machines require a hard disk drive and QPC584 version F4, K, or higher, for the three-disk configuration on X11 release 16 and later.

System option 71 and XT machine types require three floppy disks to perform upgrades and conversions. QPC584 version F4, K, or higher, is required to support the procedure. See "Procedure 5: Using a three-disk or four-disk configuration" on page 93 for a complete description for upgrading your system using this method.

Be sure to check memory utilization on the XT and system option 71 machines before converting to X11 release 16. Note the memory stamp issued when any service change program between LD 10 and LD 19 is loaded. If the AVAIL field shows 100,000 or less, add a second memory board *before* conversion. Go to "Procedure 10: Increasing memory" on page 169 for steps to increase your memory.

Option 21 systems must have NT8D18 Release 11 or later to support X11 release 16 software.

X11 release 17

X11 release 17 requires the three-disk configuration for XT and 71 systems.

System option 71 and XT machine types require three floppy disks to perform upgrades and conversions. QPC584 version F4, K, or higher is required to support the procedure. See "Procedure 5: Using a three-disk or four-disk configuration" on page 93 for a complete description for upgrading your system using this method.

As of X11 release 17, each ACD AST set is defined individually by using LD 10 and LD 11. As a consequence, you must reconfigure ACD AST sets manually through LD 10 and LD 11 after upgrading to X11 release 17. See *X11 input/output guide* (553-3001-400).

X11 release 18

X11 release 18 introduces the system option 81. Refer to system documentation for complete information and hardware requirements.

System option 81 machines require clock controller QPC471 vintage H or later, or QPC775 vintage C or later.

X11 release 18 is a hardware breakpoint. The ST and 21 systems must be upgraded to ST Enhanced (STE) or 21 Enhanced (21E) machines to support X11 release 18. Refer to *Upgrade system installation through X11 release 21* (553-3001-250) for the STE and 21E upgrade procedures. The following hardware is required.

- NTND01 Integrated CPU and Memory (ICM)
- NTND02 Miscellaneous SDI Peripheral Signaling (MSPS)
- NTND31 Read Only Memory card
- QPC742F Floppy Disk Interface (FDI)
- NTND15 Floppy Disk Unit (FDU)

X11 release 18 requires the following hardware changes for the NT, RT, XT, 51, 61, and 71. See “Procedure 7: CD-ROM software conversion” on page 131 for hardware installation steps during the parallel reload.

- NTND08 Read Only Memory (ROM) card
- NTND09Bx 6-Mbyte memory card
 NTND09Cx 12-Mbyte memory card
- NTND10 Changeover and Memory Arbitrator (CMA) card
- QPC584L Mass Storage Interface (MSI) card or
 NT9D34 Enhanced Mass Storage Interface (EMSI) card
- QPC742F Floppy Disk Interface (FDI) card
- NTND15 Floppy Disk Unit (FDU)
- NTND16 Multi Disk Unit (MDU)

Note 1: With X11 release 18 and later, only STE, 21E, and RT systems support the optional FDI and FDU. All other systems require the MSI/EMSI and MDU.

Note 2: If you are replacing an NTND09Bx 6-MB card with the NTND09Cx 12 MB memory card, use "Procedure 6: Performing a parallel reload" on page 101 to enter parallel mode *before* changing the card. You **must** sysload for the changes to take effect. Refer to *Meridian 1 hardware replacement* (553-3001-520) for complete instructions.

The X11 release 18 feature Multiple Appearance DN Redirection Prime automatically assigns a MADN Redirection Prime (MARP) TN when you convert your system to X11 release 18. When converting to X11 release 18, MARP is not activated until you do so in LD 17. Refer to *X11 features and services* and *X11 input/output guide* (553-3001-400) for a complete description.

Overlay Cache Memory allocates memory buffers for quicker overlay storage and retrieval. When converting from a previous release, this feature is not enabled until you do so in LD 17. However, when converting to a higher issue of X11 release 18, some memory allocation changes may take place. This does affect the amount of memory used and available when converting your system. Refer to *X11 features and services* and *X11 input/output guide* (553-3001-400) for a complete description.

Existing AML (CSL) and DCH ports keep their device number and are given an equivalent logical number and a card type (CTYP) of ESDI or DCHI. For example: CSL 9 becomes AML 9 with device number of 9 and CTYP of ESDI; DCH 13 becomes DCH 13 with device number of 13 and CTYP of DCHI.

Asynchronous ESDI TTY ports on QPC513 ESDI cards are removed from the database.

Normal SDI ports are assumed to be on an SDI2 card type. The card type will have to be updated manually for other SDI card types. This can only be done by using the ADAN prompt with the OUT and NEW commands in LD 17.

Asynchronous ESDI TTY ports on QPC757 DCHI cards convert to TTY ports with CTYP of DCHI.

X11 release 19

X11 release 19 introduces system management changes. Refer to *X11 software management* (553-3001-300) and *X11 input/output guide* (553-3001-400) for details regarding the enhancements. The following are some of the system features available with X11 release 19 and later.

- Linked overlay programs (LD 10, LD 11, LD 20, LD 32)
- Program restructuring
- Fault management
- Feature improvements
 - CPND, LAPW, and BARS
 - Speed Call and Steering Codes
 - History file, Log file, and session file
 - I/O port lockout recovery
- System message lookup tool (option 81)
- Multi-user login
- Single Terminal Access
- Voice Mailbox Administration

With Voice Mailbox Administration (VMBA), the Meridian 1 system administrator uses Meridian 1 telephone administration LD 10 and LD 11 to administer and maintain voice mailboxes (VMBs).

X11 release 19 introduces the system option 61C. Refer to system documentation for complete information and hardware requirements.

X11 release 19 requires the three-disk configuration for XT and 71 systems.

If any patches reside in X11 release 19 software, the following information will be printed at sysload.

PAT000 Inserted
PAT001 Inserted
PAT003 Inserted

Use LD 22 (TYPE = ISSP) to view the following printout of system patch information.

Num	Name	PRS	ID	OVL Packages
+PAT000	JATEST1	BV01234	MTV2345	
+PAT001	AATEST	BV01345	MTV2346	
-PAT002	MTVPKG68	BV01456	MTV2567	2
+PAT003	TIMEPCH	BV02678	MTV2890	22

The plus (+) sign indicates that the patch will be installed. The minus (-) sign indicates that the patch will not be installed. Patches will not be installed when the code that is being patched is not propagated on the system. Refer to *X11 input/output guide* (553-3001-400) should any other messages appear.

X11 release 20

X11 release 20 supports Automatic Inline Conversion from X11 release 19, X81 Phase 7 and X81 Phase 8.

Option 21E and STE systems upgrading to X11 release 20 must use an NTND01CA ICM card. Verify the version of the ICM card in your system and replace it (if it is not version CA or later) before performing any software upgrade procedures. Refer to *Product compatibility* (553-3001-156) for a complete list of compatible versions.

Option 81 systems require additional memory on the NT6D66 CP cards. Procedures for upgrading memory are located in "Procedure 10: Increasing memory" on page 169.

The 48MB memory card is required for option 81 with X11 release 20 and later. It is recommended for the option 51C and 61C systems.

Option 51 and 61 systems require 4 disks to upgrade to X11 release 20 or later. Refer to "Procedure 5: Using a three-disk or four-disk configuration" on page 93 for complete information.

X11 release 21

X11 release 21 supports Automatic Inline Conversion from X11 release 19, 20, X81 Phase 7 and X81 Phase 8.

X11 release 21 introduces the NT9D19 CP card for options 81 and 81C. The NT9D19 CP card is a 68040 call processor with greater real time capability than the 68030 based NT6D66 CP card. Refer to Table 2 for CP card memory requirements.

Software installation must be independently performed on each side of a dual CPU system for the 68040 Call Processor.

Note: NT9D19 CP cards require release 21 software with software generic 1911 for option 81 and 81C.

Table 2
Release 21 memory requirements

System type	Minimum memory requirement	
	68030 CP card	68040 CP card
option 51C	24 MB	not supported
option 61C	24 MB	not supported
option 81/81C	48 MB	48 MB

X11 release 22

X11 release 22 supports Automatic Inline Conversion from X11 release 19, 20, 21, X81 Phase 7 and X81 Phase 8 in system options 51C, 61C, 81, and 81C. It also introduces the NT9D19 CP card for options 51C and 61C.

To install X11 release 22 software, your system must be operating with the required CP card memory. For systems equipped with NT6D66 CP cards, the minimum memory requirement is 48 MB. For systems equipped with NT9D19 CP cards, options 51C and 61C require a minimum of 48 MB and options 81 and 81C require a minimum of 64 MB. Refer to Table 2 for supported call processors and memory configurations for release 22.

Note: In market regions where the NT9D19 64 MB CP card is not available, options 81 and 81C require NT9D19 96 MB CP cards to run X11 release 22.

Table 3
Release 22 memory requirements

System type	Minimum memory requirement	
	68030 CP card	68040 CP card
option 51C	48 MB	48 MB
option 61C	48 MB	48 MB
option 81/81C	48 MB	64 MB

If your system requires additional memory to install X11 release 22 software, refer to "Procedure 10: Increasing memory" on page 169.

Software installation must be independently performed on each side of a dual CPU system equipped with NT9D19 CP cards.

X11 release 23

X11 release 23 support Automatic Inline Conversion from X11 release 19, 20, 21, 22, X81 Phase 7 and X81 Phase 8 in system options 51C, 61C, 81 and 81C. It also introduces the NT5D10 (68060) Call Processor card, and the NT5D61 Input Output Disk Unit with CD-ROM (IODU/C) card.

Note: The NT5D03 (68060E) Call Processor card is supported with software release 23.5X and later.

CP card options

With release 23, option 51C, 61C, 81 and 81C systems can use any one of the following four CP based processors available:

- NT5D03 CP card (68060E) for release 23.5X and later
- NT5D10 CP card (68060)
- NT9D19 CP card (68040)
- NT6D66 CP card (68030)

Memory requirements are determined by the system type and X11 software release level. Refer to Table 4 for the release 23 CP card memory requirements.

Table 4
Release 23 memory requirements

System type	Minimum memory requirement			
	68030 CP card*	68040 CP card	68060 CP card	68060E CP card
option 51C	48 MB	48 MB	48 MB	48 MB
option 61C	48 MB	64 MB	64 MB	64 MB
option 81/81C**	48 MB	80 MB	80 MB	80 MB
Note: *The 68030 CP card is not available for new system sales or system upgrades				
Note: **Some systems may require a CP card upgrade (refer to the release 23.5x General Release Bulletin).				

Table 2 lists the X11 release 23 software generics for each system type.

Table 5
Release 23 software generics

System type	Software generic with 68030 CP card	Software generic with 68040 CP card	Software generic with 68060 CP card	Software generic with 68060E CP card
option 51C	1711	2211	2411	2811
option 61C	1811	2311	2511	2911
option 81/81C	1611	1911	2611	3011

NT5D61 IODU/C card

The NT5D61 Input/Output Disk Unit with CD-ROM (IODU/C) card introduces a CD ROM multi-drive unit for options 51C, 61C, 81, and 81C systems. The IODU/C card uses a security device and key codes to activate software features and ISM limits for new installations and upgrades. The IODU/C uses an industry-standard 2 MB floppy drive rather than the 4 MB floppy drive used in the existing CMDU and IOP/CMDU cards.

The IODU/C card is available in two vintages:

- NT5D61AA: includes hard drive, 2 MB floppy drive, and CD-ROM drive
- NT5D61BA: includes hard drive and 2 MB floppy drive

Note: NT5D61AA is mandatory for option 51C systems. Option 61C, 81, and 61C systems require at least one NT5D61AA IODU/C card to perform software installation from CD-ROM.

In the NT5D21 Core/Net module, the IODU/C occupies slots 17, 18, and 19. In the NT9D11 Core/Net and NT6D60 Core modules, the IODU/C card occupies slots 16, 17, and 18.

The primary differences between the IODU/C and IOP/CMDU cards are listed in Table 6.

Table 6
IODU/C and IOP/CMDU differences

	IODU/C	IOP/CMDU
Software installation	Reads generic software from a CD-ROM	Reads customized software from a 4 MB floppy diskette media
Feature activation	Controlled by a security device and keycode	Controlled by a security cartridge
Security device replacement	The security device on the IODU/C is replaced only in the unlikely event of failure	The security cartridge is replaced with each software order
Feature expansion/ISM limit change	Requires new keycode only.	Requires shipment and reload of custom software and security cartridge.
2MB floppy media	Supports 2 MB floppy media. For large databases, the IODU/C supports multiple floppy diskette backup.	Supports 4 MB floppy media.

X11 release 24

X11 release 24 supports Automatic Inline Conversion from X11 release 19, 20, 21, 22, 23, X81 Phase 7 and X81 Phase 8 in system options 51C, 61C, 81 or 81C. Software installation and conversion is supported on CD-ROM using an IODU/C drive.

With release 24, option 51C, 61C, 81, and 81C systems can use any of the following processors available:

- 68060E NT5D03 CP card
- 68060 NT5D10 CP card
- 68040 NT9D19 CP card

Memory requirements are determined by the system type and X11 software release level. Refer to Table 7 for the release 24 CP card memory requirements.

Table 7
Release 24 memory requirements

System type	Minimum memory requirement		
	68040 CP card*	68060 CP card	68060E CP card
option 51C	48 MB	48 MB	48 MB
option 61C	64 MB	64 MB	64 MB
option 81/81C	80 MB**	80 MB	80 MB
Note: *The 68040 CP card is not available for new system sales.			
Note: The 96 MB 68040 CP card is not supported on option 81/81C systems running X11 release 24. Option 81/81C systems using 96 MB 68040 cards must perform a memory upgrade or card replacement.			

Table 8 lists the X11 release 24 software generics for each system type.

Table 8
Release 24 software generics

System type	Software generic with 68040 CP card	Software generic with 68060 CP card	Software generic with 68060E CP card
option 51C	2211	2411	2811
option 61C	2311	2511	2911
option 81/81C	1911	2611	3011*
Note: *Software option 298 is required on Option 81 systems, and software option 299 is required on Option 81C systems.			

X11 release supported by machine type

Table 9 shows the X11 release associated with each system and its available release levels. The last two digits in the "X11 system number" column indicate the software generic (X11); the first one or two digits indicate the system type. For example, the system number for system option 81C is 1911.

Table 9
Software generic by machine type (Part 1 of 2)

System type	X11 system number	Lowest supported X11 release	Highest supported X11 release
ST	1011	9	17
STE	1511	18	21
NT	1111	8	21
XT	1211	8	21
RT	1311	12	21
Option 21	1011	15	17
Option 21E	1511	18	21
Option 51	1111	15	21
Option 51C equipped with NT6D66 CP card	1711	20	23
Option 51C equipped with NT9D19 CP Card	2211	22	24
Option 51C equipped with NT5D10 CP card	2411	23	24
Option 51C equipped with NT5D03 CP card	2811	23.5X	24
Option 61	1111	15	21
Option 61C equipped with NT6D66 CP card	1811	19	24

Table 9
Software generic by machine type (Part 2 of 2)

System type	X11 system number	Lowest supported X11 release	Highest supported X11 release
Option 61C equipped with NT9D19 CP card	2311	22	24
Option 61C equipped with NT5D10 CP card	2511	23	24
Option 61C equipped with NT5D03 CP card	2911	23.5X	24
Option 81 equipped with NT6D66 CP card*	1611	18	24
Option 81 equipped with NT9D19 CP card*	1911	21	24
Option 71	1211	15	21
Option 81 equipped with NT5D10 CP card*	2611	23	24
Option 81 equipped with NT5D03 CP card*	3011	23.5X	24
Option 81C equipped NT6D66 CP card**	1611	21	24
Option 81C equipped with NT9D19 CP card**	1911	21	24
Option 81C equipped with NT5D10 CP card**	2611	23	24
Option 81C equipped with NT5D03 CP card**	3011	23.5X	24
Note 1: *Option 81 systems require software option 298.			
Note 2: **Option 81C systems require software option 299.			

Procedure 1: Preconversion procedure

Read the Conversion notes section in this document before beginning your conversion procedures. The conversion procedure used depends on the release of the **Source** and **Target** software. Make sure you have all the necessary hardware and software. Save a copy of your data dumped **Source** software until you are sure that all site data converted successfully.

Use this procedure to begin all software conversions. When you complete this procedure, refer to “Procedure 3: Convert from one X11 release to a later release” on page 47, “Procedure 4: Convert to later issue of the same release” on page 89, “Procedure 6: Performing a parallel reload” on page 101, “Procedure 7: CD-ROM software conversion” on page 131, or appropriate. After you have completed your conversion, perform the post-conversion steps in “Procedure 12: Postconversion procedure” on page 301.

The following items should be available before proceeding:

- the Controlled Release Bulletin for the new software
- the appropriate software and conversion media
- the CD-ROM, disk or tape drive (as required)
- 2 MB MDU for system option 71 and XT machines with X11 releases 15, 16, and 17
- 3.5-inch 2 MB High Density (HD) floppy disks for X11 release 15 through 17
- 3.5-inch 4 MB Extra High Density (ED) floppy disks for X11 release 18 and later
- 4 MB MDU or CMDU for X11 release 18 and later
- 4 MB IOP/CMDU or 2 MB IODU/C for X11 release 23 and later
- QPC584 F4, K, or higher, or NT9D34 for the three-disk configuration with X11 release 16 and 17
- QPC584L or NT9D34 for NT, XT, 51, 61, and 71 systems with X11 release 18 and later
- the security device(s) and keycodes required for systems equipped with IODU/C
- the security data cartridges required for each release if the system is equipped with disks (see “Procedure 8: Installing new data cartridges and option packages” on page 159)
- a new ROM daughterboard if required for an intermediate release or the **Target** release (see “Procedure 9: Install a new Read Only Memory card” on page 163)
- a temporary SDI card and a local TTY or remote TTY modem required to perform parallel reload in dual CPU systems
- new memory cards and CMAs, if required

Preconversion steps

- 1 Perform an overall system check. Make sure the system is performing normal call processing.
- 2 Get software information from LD 22.

LD 22

REQ ISS
******** to exit overlay

With X11 release 16.65 and later, patches do not need to be removed prior to conversion. When datadumping (EDD), an EHM500 message is printed, rather than a list of patch numbers.

If converting from 15.53, 14.41, or earlier, you must have the patches removed prior to converting. Data corruption may occur if you do not remove the patches prior to conversion.

If a patch is included in your software and you are running on release 19 or higher, a plus sign (+) will appear next to the software issue number in LD 22.

- 3 Load the configuration record (LD 17) to find the storage currently available in the Protected and Unprotected Data Store (PDATA and UDATA). Check the General Release Bulletin to see if additional memory cards are required for the new software or for any option packages being added.
- 4 Print system data listed in Table 10. Verify all information is correct. Make corrections if necessary.
- 5 If additional memory is required for the conversion, change the MSPT, MEM, or MTYP prompts in the configuration record (LD 17). See "Procedure 10: Increasing memory" on page 169.

- 6 With X11 release 14 and later, perform a template audit. The template audit reviews the templates in your system and cleans up any duplicate or corrupted templates. The following is an example of the information generated by the system during the audit. **This may take an extended period of time on large systems.** It is recommended that it be run during a low traffic period.

WARNING

Do not abort this overlay until the audit is complete. If the overlay is interrupted, data will be corrupted.

LD 01 The audit begins as soon as LD 01 is entered.

TEMPLATE AUDIT

STARTING PBX TEMPLATE SCAN

TEMPLATE 0001 USER COUNT LOW CHECKSUM OK

TEMPLATE 0002 USER COUNT HIGH CHECKSUM OK

TEMPLATE 0003 NO USERS FOUND

STARTING SL1 TEMPLATE SCAN

TEMPLATE 0001 USER COUNT OK CHECKSUM OK

.

.

TEMPLATE 0120 USER COUNT OK CHECKSUM OK

TEMPLATE AUDIT COMPLETE

- 7 To ensure backup, perform a data dump to the **Source** system media currently in the drive. If the data dump is not successful, do not proceed with the conversion. The data dump problem must be corrected. Contact your NT technical support. If an MDU is equipped, disable and remove the QPC584 MSI card. Turn switch 3, position 4 (SW 3-4) ON. Reinsert and enable the card.

LD 43

EDD

DATADUMP COMPLETE (or DATABASE BACKUP COMPLETE) is printed when the data dump has been successfully completed. Investigate any EDD messages. Refer to *X11 input/output guide* (553-3001-400).

- 8 If parallel reload is to be used during the conversion, go to "Procedure 6: Performing a parallel reload" on page 101 or "Procedure 7: CD-ROM software conversion" on page 131. Be sure to perform the correct parallel reload procedure for your system.

Note: To monitor the CPUs during parallel reload procedures, install a temporary Serial Data Interface (SDI) card, and connect a local TTY (or modem for remote TTY access). Refer to the parallel reload procedures for more information.

If parallel reload is not required (single CPU system) then perform one or more of the following conversion procedures. Remember to perform the post-conversion steps ("Procedure 12: Postconversion procedure" on page 301) to complete the conversion.

- "Procedure 2: Converting from X11 release 8 or 9 to X11 release 10" on page 43
- "Procedure 3: Convert from one X11 release to a later release" on page 47
- "Procedure 4: Convert to later issue of the same release" on page 89
- "Procedure 5: Using a three-disk or four-disk configuration" on page 93
- "Procedure 8: Installing new data cartridges and option packages" on page 159
- "Procedure 9: Install a new Read Only Memory card" on page 163
- "Procedure 10: Increasing memory" on page 169

Items marked with asterisks (*) are required printout for conversion. Other items are recommended for a total system status.

Table 10
Print site data (Part 1 of 2)

Site data	Print command	
Terminal blocks for all TNs	LD 20	
	REQ	PRT
	TYPE	TNB
	CUST	<cr>
Directory Numbers	LD 20 (LD 22 prior to Release 16)	
	REQ	PRT
	TYPE	DNB
	CUST	<cr>
Attendant Console data block for all customers	LD 20	LD 20
	REQ	PRT
	TYPE	ATT, 2250
	CUST	<cr>
*Customer data block for all customers	LD 21	LD 21
	REQ	PRT
	TYPE	CDB
	CUST	<cr>
Route data block for all customers	LD 21	
	REQ	PRT
	TYPE	RDB
	CUST	Customer number
	ROUT	<cr>
	ACOD	<cr>
*Configuration Record	LD 22	
	REQ	PRT
	TYPE	CFN

Table 10
Print site data (Part 2 of 2)

Site data	Print command	
*Software packages	LD 22	
	REQ TYPE	PRT PKG
*Software issue, ROM and tape ID	LD 22	
	REQ REQ REQ	ISS ROM TID
* Peripheral software versions	LD 22	
	REQ TYPE	PRT PSWV
ACD data block for all customers	LD 23	
	REQ TYPE CUST ACDN	PRT ACD Customer Number ACD DN (or <CR>)
Superloop card IDs and software version (peripheral controller, superloop network and controller cards)	LD 32	
	.	IDC loop
Multi-purpose ISDN Signaling Processor (MISP) card	LD 27	
	REQ TYPE LOOP APPL PH	PRT MISP loop number (0-158) <cr> <cr>
DTI/PRI data block for all customers	LD 73	
	REQ TYPE	PRT DDB
Note: Items marked with asterisks (*) are required printout for conversion. Other items are recommended for a total system status.		

Procedure 2: Converting from X11 release 8 or 9 to X11 release 10

This procedure assumes that the **Source** software is X11 release 8 or 9, and you are currently using disk drives. For systems with earlier software releases, use the appropriate Controlled Release Bulletin.

Refer to *Upgrade system installation through X11 release 21* (553-3001-250) to determine if the following hardware is required.

- ROM cards for intermediate and Target releases
- Data cartridges for intermediate and Target releases when equipped with disk drives
- Additional memory cards
- Floppy and/or hard disk drive assemblies required for X11 release 10.

CAUTION

If the sysload is not successful, do not proceed with the conversion.

Reinstall your **Source** media, replace any changed hardware, and reload the system. Contact your technical support.

Convert to X11 release 10

- 1 Perform the steps in the pre-conversion procedure ("Procedure 1: Preconversion procedure" on page 35) if you have not already done so.
- 2 If an MDU or SMDU is equipped, disable and remove the QPC584 MSI or NT9D34 EMSI card. For the QPC584 card, turn position 4 on switch 3 (SW3-4) OFF. For the NT9D34 card, turn position 4 on switch 2 (SW2-4) OFF.
- 3 Reinsert the card, and set the ENB/DIS faceplate switch to ENB.
- 4 Insert the conversion disk into drive A, and load the conversion program (LD 66).
- 5 When the "CDD000" prompt is given, be sure the messages output to the TTY indicate the desired release, and remove the conversion disk.
- 6 Insert the **Target** disks. Be sure the **Target** disk labels match the conversion disk labels. System disks go into drives A, and B.
Both Target disks must be inserted.
- 7 Set the QPC584, NT9D34, or QPC742 card ENB/DIS faceplate switch to DIS.
- 8 Remove the QPC584, NT9D34, or QPC742 card and install the new data cartridge.
- 9 Reinsert the QPC584, NT9D34, or QPC742 card and set the ENB/DIS switch to ENB.
- 10 Start conversion data dump with the command **CDD**.
- 11 When the conversion is complete, **DONE** is printed on your TTY.
- 12 In a dual CPU system, perform a sysload in CPU 1 by pressing the CPU RLD button (see "Procedure 6: Performing a parallel reload" on page 101).

In a single CPU system, perform a sysload by pressing the RLD button. The data is automatically converted.
- 13 When the sysload and initialization are complete, perform a data dump to the disks inserted in step 6.
- 14 Repeat steps 4 through 13 for each intermediate software release, if necessary.

After you have converted to X11 release 10, use “Procedure 3: Convert from one X11 release to a later release” on page 47 to convert to X11 release 12 or later.

Procedure 3: Convert from one X11 release to a later release

Automatic inline conversion

The procedures in this section describe how to convert from one X11 release to a later release using Automatic Inline Conversion. Automatic Inline Conversion is a process of software conversion between individual releases that does not require additional hardware. Refer to Table 1 on page 5 for a list of X11 releases supported by Automatic Inline Conversion.

Note: To perform these procedures, your **Source** software must be X11 release 10 or later.

To convert software in option 51C systems, refer to:

- “Convert with Automatic Inline Conversion: Option 51C (without IODU/C)” on page 48 or “Option 51C software conversion” on page 147

To convert software in system options 61C, 81, and 81C, refer to:

- “Procedure 6: Performing a parallel reload” on page 101 or “Procedure 7: CD-ROM software conversion” on page 131

To convert software in systems other than 51C, 61C, 81, and 81C, refer to

- “Convert with Automatic Inline Conversion: Option 51C (without IODU/C)” on page 48
- “Convert without Automatic Inline Conversion (X11 releases 12 and 13)” on page 53

Note: Automatic Inline Conversion from X11 release 10 is supported to X11 release 14 or 15 only. To go to X11 release 12 or 13, you must go through X11 release 11 first, using the procedure on page 53. You can use Automatic Inline from X11 release 11 to 12 or later.

Convert with Automatic Inline Conversion: Option 51C (without IODU/C)

The option 51C is available with X11 release 20 and later.

This procedure is for software conversions and upissues only. It is not an installation, upgrade, or maintenance procedure. Refer to system documentation for complete details regarding the option 51C.

Before converting software, determine whether your system requires additional memory. If your system is not operating with the minimum memory requirement, the CP card memory must be upgraded before continuing with this conversion procedure. Procedures for upgrading memory are located in "Procedure 10: Increasing memory" on page 169.

1 Perform a data dump:

LD 43	to load the program
EDD	to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" displays on the terminal, proceed with the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

**** to exit the program

- 2 Connect a terminal to the CPSI port in the Core/Net module at J25 on the I/O panel at the back of the module. Be sure is configured as follows. The recommended baud rate is 9600, the same as the CPSI port.
 - 7 data bits
 - 1 stop bit
 - Space parity
 - Full duplex
 - XON protocol
- 3 Set the END/DIS switch on the IOP/CMDU to DIS. Remove the IOP/CMDU and replace the QMM42 Data Cartridge with the **Target** cartridge.
- 4 Reset the IOP/CMDU and set the faceplate switch to ENB.
- 5 Install Target installation disk (labeled A1) into the IOP/CMDU.
- 6 Press the MAN RST button on the CP card. A sysload (cold start) will begin.
- 7 When the Software Installation Tool Main Menu appears, select the following options in sequence when you are prompted to do so:
 - <a> to install software, CP-BOOT ROM and IOP-ROM
 - <y> to start installation
 - <a> to continue with the upgrade
- 8 Insert disk 2 from the software upgrade package into the CMDU or IOP/CMDU card. Follow the screen directions requiring disk insertion.
- 9 Following the software installation, install the CP-BOOT and IOP-ROMs. From the menu select the following:
 - <a> to continue with ROM upgrade
 - <a> to continue with ROM upgrade (CP-BOOT ROM)
 - <y> to start installation
 - <a> to continue with ROM upgrade (IOP-ROM)
- 10 Remove any diskettes from the CMDU or IOP/CMDU.

- 11 Select the following options to quit and reload the system:

<q>	to quit
<y>	to confirm quit
<a>	to reboot the system

The system will automatically perform a sysload.

Note: The following message appears on the system terminal:

DATA CONVERSION

X11 RELEASE xx.xx TO RELEASE 22.xx

- 12 Verify that the “DONE” message appears on the system terminal.

Note: The SYSTEM INI message may take 70 seconds or more to appear.

- 13 Verify CPU and CNI functionality:

LD 135	to load the overlay
STAT CPU	to check the CPU status
STAT CNI	to verify CNI functionality
****	to exit the program

- 14 Insert the release 24 software B1 diskette into the CMDU or IOP/CMDU.

- 15 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43	to load the program
--------------	---------------------

- 16 When “EDD000” appears on the terminal, enter

EDD	to begin the data dump
------------	------------------------

- 17 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter

****	to exit the program
-------------	---------------------

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

**Convert with Automatic Inline Conversion
(X11 release 14 and later)**

- 1 Perform the steps in the pre-conversion procedure ("Procedure 1: Preconversion procedure" on page 35) if you have not already done so.
- 2 Manually load LD 43 from the **Source** disk. When you see EDD000, disable the faceplate switch on the QPC584, NT9D34, or QPC742 card.
- 3 Remove the QPC584 or NT9D34 card and:
 - for QPC584 cards, set position 4 on switch 3 (SW3-4) to OFF
 - for NT9D34 cards, set position 4 on switch 2 (SW2-4) to OFF
- 4 Install the new data cartridge on the QPC584, NT9D34, or QPC742 card in the CPU (in dual-CPU systems, install the cartridge on the card in CPU 1), and reinsert the card.
- 5 Set the QPC584, NT9D34, or QPC742 card ENB/DIS faceplate switch to ENB.
- 6 Remove both **Source** disks and insert both **Target** disks. Dump to the **Target** disks.

DATADUMP COMPLETE

Output when data dump is successful.

BACKING UP DISK B1

Output when hard drive is equipped.

EDD034

BACKUP FAILED

This appears when SW3-4 on the QPC584 or QPC742 card is OFF, or when SW2-4 on the NT9D34 card is OFF (see step 3, above). This is not an error.

[.]

Signifies completion of data dump.

If the data dump is not successful, do not proceed with the conversion. Contact your technical support.

- 7 Replace the ROM card if necessary. See "Procedure 9: Install a new Read Only Memory card" on page 163.
- 8 Replace the QPC583 or NTND09BA memory card with the NTND09CA 12 MB memory card.
- 9 On a dual CPU system, perform a sysload on CPU 1 only, by pressing the RLD button.

On a single CPU system, perform a sysload by pressing the RLD button. The data is automatically converted.
- 10 The following sysload and initialization messages are output on the TTY. If the sysload or initialization is not successful, do not proceed with the conversion. Contact your technical support personnel. If you need to return to the original software, reinstall your source disks.

SYS000

SYS092

SYS093

SYS511

SYS091

SYS090

DONE

INI000

CAUTION

System information will be lost.

With Incremental Software Management (ISM) in X11 release 15.55 and higher, if SYS message 4327, 4328, 4329, or 4330 appears at sysload, reload **Source** system disks and restore any changed hardware. Order ISM disks with sufficient system parameters configured.

- 11 Perform a data dump to two backup disk sets. Login and load the data dump program (LD 43). Insert the backup disks and dump to the disks.

EDD DATADUMP COMPLETE is output when the data dump has been successfully completed.

BACKUP FAILED This appears when SW3-4 on the QPC584 or QPC742 card is OFF, or when SW2-4 on the NT9D34 card is OFF. This is not an error.

[.]

If you are doing parallel reload, go to "Completing the parallel reload on the NT/RT/61" on page 118.

If you are on a single CPU system, go to "Procedure 12: Postconversion procedure" on page 301.

Convert without Automatic Inline Conversion (X11 releases 12 and 13)

- 1 Perform the steps in the pre-conversion procedure ("Procedure 1: Preconversion procedure" on page 35) if you have not already done so.
- 2 If an MDU or SMDU is equipped, remove the QPC584 or NT9D34 card and:
 - for QPC584 cards, set position 4 on switch 3 (SW3-4) to OFF
 - for NT9D34 cards, set position 4 on switch 2 (SW2-4) to OFF
- 3 Reinsert the card, and set the QPC584 or NT9D34 card ENB/DIS faceplate switch to ENB.
- 4 Insert the conversion disk in drive A.
- 5 Load the Conversion program (LD 66).
- 6 When the "CDD000" prompt is given, be sure the messages output to the TTY indicate the desired release, and remove the conversion disk.
- 7 Insert the **Target** disks. Be sure the **Target** disk labels match the conversion disk labels. System disks goes into drives A, and B.
Both Target disks must be inserted.
- 8 Set the QPC584, NT9D34, or QPC742 ENB/DIS faceplate switch to DIS.

- 9 Remove the QPC584, NT9D34, or QPC742 card and install the new data cartridge.
- 10 Reinsert the card and set the ENB/DIS faceplate switch to ENB.
- 11 Start conversion data dump with the command **CDD**.
- 12 When the conversion data dump is complete, **DONE** is printed on the TTY. Replace the ROM card if necessary. See "Procedure 9: Install a new Read Only Memory card" on page 163.
- 13 Replace the QPC583 or NTND09BA memory card with the NTND09CA 12 MB memory card.
- 14 For dual CPU systems, perform a sysload in CPU 1 only by pressing the CPU RLD button (see "Procedure 6: Performing a parallel reload" on page 101).
- 15 When the sysload and initialization are complete, perform a data dump to the **Target** disks inserted in step 7.

CAUTION

If the sysload is not successful, do not proceed with the conversion.

Reinstall your **Source** media, replace any changed hardware, and reload the system. Contact your technical support.

If you are doing parallel reload, go to "Completing the parallel reload on the NT/RT/61" on page 118.

If you are on a single CPU system, go to "Procedure 12: Postconversion procedure" on page 301.

Converting X11 release 15 through 17 to release 18 or 19

The conversion procedures in this section require hardware upgrades as well as software conversion. Be sure to follow the procedure for your system carefully to ensure complete system conversion.

X11 release 15, 16, or 17 must be the **Source** software release before converting to X11 release 18. To convert to X11 release 19 your **Source** software must be X11 release 17. For conversion from X11 release 18 to 19, refer to "Procedure 6: Performing a parallel reload" on page 101.

This procedure *does not* include upgrade procedures to the option 81 (X11 release 18) or the option 61C (X11 release 19). Refer to *Upgrade system installation* (553-3001-250) for complete upgrade information.

These conversions require upgraded memory for the NT, RT, XT, 61, and 71. The following hardware changes are required.

- NTND08 ROM
- QPC584L Mass Storage Interface (MSI)
- QPC742F Floppy Disk Interface (FDI)
- NTND09Bx 6-MB memory card
NTND09Cx 12-MB memory card
- NTND10 CMA
- NTND16 Multi Disk Unit (MDU)
- NTND15 Floppy Disk Unit (FDU)

Note 1: Two NTND80 cables are required for the NTND16 MDU. Be sure this cable is available before beginning your conversion.

Note 2: With X11 release 18 and later, only STE, 21E, and RT systems support optional FDI/FDU (QPC742F FDI, NTND15 FDU). All others require the MSI/MDU.

When performing these procedures you will install the **Source** software to verify system data, then convert to the **Target** X11 release 18 hardware and software.

CAUTION

Hardware changes must be performed.

To return to the previous release, you must reseal the original hardware.

Note: The option 61C is available with X11 release 19 and later only. Refer to system documentation for information regarding the option 61C and option 81 systems.

Convert the NT/61 to X11 release 18

- 1 Perform the pre-conversion steps as shown in "Procedure 1: Preconversion procedure" on page 35.
- 2 Load LD 35 and get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

LD 35	
STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.
- 3 Test and switch CPUs.

TCPU	Test the CPUs.
SCPU	Switch the CPUs.
- 4 Get the status of the other CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
- 5 Ensure CPU 0 is enabled (CPU 1 is idle).
- 6 If equipped, set the QPC84 Power Monitor card (in CPU cabinet) ENL/DIS faceplate switch to DIS. Do not remove the card.

7 Place CPU 0 into Maintenance by setting the MAINT/NORM faceplate switch to MAINT.

8 List the enabled memories. Then disable the memory and CMA in CPU 1.

LENL	List enabled memory.
DIS 10	Disable CPU 1 memory.
DIS CMA 1	Disable CMA 1.

9 Type **** to exit overlay.

10 Type **DIST**. This software-disables the QPC584/QPC742 in CPU 0.

11 On CPU 0, set the QPC584/QPC742 ENB/DIS faceplate switch to DIS.

12 Get a temporary Serial Data Interface card. For option 61 systems, a Serial Data Interface paddle board may be used. Use a spare. Verify the baud rate. If it does not match the TTY, output characters may be garbled. Be sure the card is configured exactly as the existing maintenance TTY device.

13 Place the temporary SDI card in a vacant slot in CPU 1. If using the SDI paddle board, place it in slot 12 in the rear of CPU 1.

14 Set the temporary SDI card ENB/DIS faceplate switch to ENB. Connect a local TTY, or a modem for a remote TTY, to the temporary SDI card.

15 If an MDU is equipped, remove the QPC584 card from CPU 1 and set switch 3, position 4 (SW3-4) to OFF.

- 16 Set the MAINT/NORM switch to MAINT in CPU 1. This will cause a sysload. If the sysload does not begin, press the RLD button on CMA 1 only.

The following messages will print out on your TTY. The CMA and SDI lights will go out, and the disk drives will run. The following SYS messages will appear (may differ slightly depending on the X11 release). Check for dial tone following the DONE and INI000 messages.

SYS000
SYS092
SYS093
SYS511
SYS091
SYS090
SYSLOAD RLS: xx
ISSUE: x

DONE

INI000

Note: When sysload is complete, midnight (daily) routines will begin. Logging in to the system temporarily interrupts the midnight routines.

- 17 Load LD 43 from the **Source** disk.

LD 43
EDD000 Indicates LD 43 is loaded.

- 18 When EDD000 appears, remove the QPC584/QPC742 card from CPU 1.

- 19 Install the Release 18 data cartridge on the QPC584L.
Set switches 1, 5, and 7 to ON. Insert the QPC584L MSI in the same slot on CPU 1.

- 20 Remove the original MDU/FDU.

- 21 Insert the NTND16 MDU.
Do not place the MDU next to a power converter.

Note: The MDU requires power and three adjacent card slots. Refer to *Disk drive upgrade procedures* (553-3001-251).

- 22 Attach the cables between the MDU and the MSI on CPU 1. Set the QPC584L ENB/DIS faceplate switch to ENB.

- 23 Insert **Target** A1 and B1 disks. Enter **EDD <CR>** to initiate datadump. Be sure the datadump is successful before moving on.
- 24 Set the CMA 1 ENB/DIS faceplate switch to DIS. Disconnect the CMA cables from the faceplate. **Disconnect the top cable first.** Remove the CMA from CPU 1.
- 25 Set the NTND10 CMA card ENB/DIS faceplate switch to DIS. Verify that pins 1 and 2 are set on jumper J3 on the NTND10 CMA.
- 26 Insert the NTND10 CMA card into CPU 1. Connect the cables to the CMA card. **Connect the bottom cable first.**
- 27 Remove the Memory card from CPU 1.
- 28 Insert the NTND09 Memory card in the same slot.
- 29 Replace the original ROM on CPU 1 with the NTND08 ROM. Refer to "Procedure 9: Install a new Read Only Memory card" on page 163 for ROM replacement instructions.
- 30 Set the NTND10 CMA 1 ENB/DIS faceplate switch to ENB.
- 31 An automatic reload may occur at this point. If it does not, press the Reload button on CPU 1. The following messages print out on your TTY. Verify any other messages.

```

SYS000
SYS0092
SYS0093 INHIBITS 000012A
SYS0511
SYS0091
SYS0090
CONV RLS x ISSUE xx TO RLS x ISSUE xx

```

```

CONVERSION PROCESS COMPLETED
DONE
INI000

```

Note: When the sysload is complete, midnight routines will begin. Log in to the system to stop the procedures. You cannot interrupt LD 43.

- 32 Set the time and date in LD 02. Note that if Call Detail Recording (CDR) is used, system message ERR225 will appear. This is normal.

```

LD 02
STAD dd mm yyyy hh mm ss      Set Time and Date.

```

dd = day (for example, 05 for the fifth)
mm = month (for example, 09 for September)
yyyy = year (2 or 4 digits, for example 92 or 1992)
hh = hour (in 24-hour time, for example, 13:00 for 1:00 pm)
mm = minute (for example, 25)
ss = seconds (for example, 00)

- 33 Update the database to reflect the release 18 features. Refer to *X11 input/output guide* (553-3001-400), and *X11 features and services* (553-3001-305) for complete explanations. Be sure to update your memory and floppy disk types, and hard disk.

in LD 17

LD 17

REQ

CHG

TYPE

CFN

ADAN

CHG HDK 0

NUMD

1, (2)

FTYP

3S

- 34 Print system data listed in Table 10. Verify all information is correct. Make corrections if necessary.

To complete the parallel reload process, go to "Complete the NT/61 conversion" on page 62.

If the system fails to load, or SYSxxxx messages indicate data corruption, back out of the parallel reload process by performing the following steps.

Back out of the NT/61 conversion

- 1 Place CPU 1 into Normal with the MAINT/NORM switch.
- 2 Disable and unseat the temporary SDI card from CPU 1. Reconnect the CRT or TTY cable to the original port.
- 3 Disable and remove the QPC584L MSI card from CPU 1. Remove the Release 18 data cartridge from the card.
- 4 Insert the **Source** QPC742/QPC584 card and data cartridge. Be sure the **Source** data cartridge is installed. Set the ENB/DIS faceplate switch to ENB.
- 5 Remove the NTND16 MDU.

- 6 Insert the **Source** MDU/FDU. Connect the original cable between the MSI/FDI and the MDU/FDU.
- 7 Insert the **Source** A1 and B1 disks in the MDU/FDU.
- 8 Set the NTND10 CMA ENB/DIS faceplate switch to DIS. Disconnect the CMA cables. **Disconnect the top cable first.** Remove the NTND10 CMA.
- 9 Insert the **Source** CMA card. Be sure it is faceplate-disabled. Connect the original CMA cables. **Connect the bottom cable first.**
- 10 Remove the NTND09 Memory card.
- 11 Insert the **Source** memory card.
- 12 Replace the NTND08 ROM card with the **Source** ROM card. Refer to "Procedure 9: Install a new Read Only Memory card" on page 163 for instructions.
- 13 Set the CMA 1 ENB/DIS faceplate switch to ENB.
- 14 Set the QPC584/QPC742 card ENB/DIS faceplate switch to ENB.
- 15 Log in and type **ENLT**. This software-enables the QPC584/QPC742 card.
- 16 Load LD 35. Enable the CMA, and enable memory in CPU 1. Enabling memory may take a few minutes.

LD 35

ENL CMA 1

Enable the CMA in CPU 1.

ENL 10

Enable the memory in CPU 1.

- 17 Get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU

Get the status of the CPUs.

STAT CMA

Get CMA status.

STAT EXT

Get the extender status.

STAT MEM

Get the memory status.

- 18 Clear the display, and clear major and minor alarms in CPU 0.

CDSP

Clear the displays.

CMAJ

Clear major alarms.

CMIN ALL

Clear all minor alarms.

19 Place CPU 0 into Normal by setting the MAINT/NORM faceplate switch to NORM.

20 Test twice and switch CPUs.

TCPU	Test the CPUs.
TCPU	Test the CPU again.
SCPU	Switch the CPUs.
CDSP	Clear display in CPU 1.
****	Get out of overlay.

21 Type **ENLT**. This software enables the QPC584/QPC742 card.

22 Load LD 35. Test and switch CPUs.

LD 35	
TCPU	Test the CPUs.
SCPU	Switch the CPUs.

23 Type ******** to exit overlay.

24 Set the QPC84 Power Monitor card ENL/DIS faceplate switch to ENB (if equipped).

You are now out of the parallel reload process. Verify system operation. Go to "Procedure 12: Postconversion procedure" on page 301.

Complete the NT/61 conversion

1 Log in to the system on CPU 1.

2 Set the time and date in LD 02. Note that if Call Detail Recording (CDR) is used, system message ERR225 will appear. This is normal.

Note: The system stops time when coming out of parallel reload. Up to 90 seconds may be lost. Verify the time when this procedure is complete.

LD 02

STAD dd mm yyyy hh mm ss Set Time and Date.
dd = day (for example, 05 for the fifth)
mm = month (for example, 09 for September)
yyyy = year (2 or 4 digits, for example 92 or 1992)
hh = hour (in 24-hour time, for example, 13:00 for 1:00 pm)
mm = minute (for example, 25)
ss = seconds (for example, 00)

- 3 Load LD 22 and print **Target** peripheral software version. The **Source** peripheral software version was printed in the pre-conversion procedure. If there is a difference between the **Source** and **Target** peripheral software version, a forced download will occur during initialization when coming out of parallel reload. The system initialization will take longer, and established calls on IPE will be dropped.

LD 22

REQ

PRT

TYPE

PSWV

- 4 Disable and unseat the temporary SDI card from CPU 1. Reconnect the CRT or TTY cable to the original port.

CAUTION

Call processing will be interrupted.

Perform these next steps carefully. This is the point at which your service is interrupted. Calls in process will be interrupted, especially if Peripheral Software Download takes place.

Perform the next 2 steps in succession.

This is the point at which call processing is interrupted; some calls may be dropped.

- 5 Place CPU 0 into normal by setting the MAINT/NORM faceplate switch to NORM.
- 6 Initialize CPU 1 by pressing the MAN INT button.

If the system does not initialize within 20 seconds, press the MAN INT button again.

The MSDL and MISP cards available with X11 release 18 and later download peripheral software after initialization. When these cards are present and the peripheral software versions have changed, wait for PSDL completion messages before continuing.

- 7 Test call processing. This includes, but is not limited to, the following.
 - Make internal, external and network calls.
 - Check attendant console activity.
 - Check DID trunks.

- 8 Set the QPC584/QPC742 card ENB/DIS faceplate switch to DIS in CPU 0. Remove the MSI/FDI from CPU 0.
- 9 Install the Release 18 data cartridge on the QPC584L. Set switches 1, 5, and 7 to ON. Insert the QPC584L MSI in the same slot in CPU 0.
- 10 Attach the NTND80 cable between the NTND16 MDU and the QPC584L MSI on CPU 0.
- 11 Set the QPC584L MSI ENB/DIS faceplate switch to ENB on CPU 0.
- 12 Set the CMA 0 ENB/DIS faceplate switch to DIS. Disconnect the CMA cables from the faceplate. **Disconnect the top cable first.** Remove the CMA from CPU 0.
- 13 Set the ENB/DIS switch to DIS on the NTND10 CMA card. Verify pins 1 and 2 are set on jumper at J3 on the NTND10 CMA card.
- 14 Insert the NTND10 CMA card in CPU 0. Connect the cables to the CMA card. **Connect the bottom cable first.**

- 15 Remove the Memory card from CPU 0.
- 16 Insert the NTND09 Memory card in the same slot on CPU 0.
- 17 Replace the ROM in CPU 0 with the NTND08 ROM. Refer to "Procedure 9: Install a new Read Only Memory card" on page 163 for ROM replacement instructions.

18 Set the NTND10 CMA 0 ENB/DIS faceplate switch to ENB.

- 19 Log back in and verify time and date. Update the time and date, if necessary.

LD 02

TTAD

STAD dd mm yyyy hh mm ss

TTAD

Verify time and date.

Set Time and Date.

Verify time and date.

- 20 Enable the CMA, and memory in CPU 0. Enabling memory may take a few minutes.

LD 35

ENL CMA 0

ENL 00

Enable CMA 0.

Enable the memory in CPU 0.

- 21 Clear the display, and clear major and minor alarms on CPU 1.

CDSP

CMAJ

CMIN ALL

Clear the displays on CPU 1.

Clear major alarms.

Clear minor alarms.

- 22 Place CPU 1 into Normal by setting the MAINT/NORM faceplate switch to NORM.

- 23 Get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU

STAT CMA

STAT EXT

STAT MEM

Get the status of the CPUs.

Get CMA status.

Get the extender status.

Get the memory status.

- 24 Test twice and switch CPUs. Clear the display and test CPUs again.

TCPU	Test the CPUs.
TCPU	Test CPUs again.
SCPU	Switch the CPUs.
CDSP	Clear display.
TCPU	Test the CPUs again.
****	Exit overlay.

- 25 Type **ENLT**. This software-enables the QPC584/QPC742 card.

- 26 Load LD 35 and switch CPUs.

LD 35
SCPU

- 27 Get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.

- 28 Load an overlay to verify data cartridge operation.

- 29 Set the QPC84 Power Monitor card ENB/DIS faceplate switch to ENB (if equipped).

You have now completed the conversion to X11 release 18. Go to "Procedure 12: Postconversion procedure" on page 301.

Convert the RT to X11 release 18

- 1 Perform the pre-conversion steps as shown in "Procedure 1: Preconversion procedure" on page 35.
- 2 Load LD 35 and get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

LD 35	
STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.

3 Test and switch CPUs.

TCPU	Test the CPUs.
SCPU	Switch the CPUs.

4 Get the status of the other CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.

5 Ensure CPU 0 is enabled (CPU 1 is idle).

6 If equipped, set the QPC84 Power Monitor card (in CPU cabinet) ENL/DIS faceplate switch to DIS. Do not remove the card.

7 Place CPU 0 into Maintenance by setting the MAINT/NORM faceplate switch to MAINT.

8 List the enabled memory. Disable the memory and CMA in CPU 1.

LENL	List enabled memory.
DIS 10	Disable CPU 1 memory.
DIS CMA 1	Disable CMA 1.

9 Type **** to exit overlay.

10 Type **DIST**. This software disables the QPC584/QPC742 in CPU 0.

11 On CPU 0, set the QPC584/QPC742 ENB/DIS faceplate switch to DIS.

12 Get a temporary Serial Data Interface card. Use a spare. Verify the baud rate. If it does not match the TTY, output characters may be garbled. Be sure the card is configured exactly as the existing maintenance TTY device.

13 Place the temporary SDI card in vacant slot in CPU 1. If using the SDI paddle board, place it in slot 12 in the rear of CPU 1.

14 Set the temporary SDI card ENB/DIS faceplate switch to ENB. Connect a local TTY, or a modem for a remote TTY, to the temporary SDI card.

15 If an MDU is equipped, remove the QPC584 card from CPU 1 and set switch 3, position 4 (SW3-4) to OFF.

- 16** Set the MAINT/NORM switch to MAINT in CPU 1. This will cause a sysload. If the sysload does not begin, press the RLD button on CMA 1 only.

The following messages will print out on your TTY. The CMA and SDI lights will go out, and the disk drives will run. The following SYS messages will appear (may differ slightly depending on the X11 release). Check for dial tone following the DONE and INI000 messages.

SYS000
SYS092
SYS093
SYS511
SYS091
SYS090
SYSLOAD RLS: xx
ISSUE: x

DONE

INI000

Note: When sysload is complete, midnight (daily) routines will begin. Logging in to the system temporarily interrupts the midnight routines.

- 17** Load LD 43 from the **Source** disk.

LD 43

EDD000 Indicates LD 43 is loaded.

- 18** When EDD000 appears, remove the QPC584/QPC742 card from CPU 1.

- 19** Install the Release 18 data cartridge on the QPC584L MSI or QPC742F FDI. If using the QPC584L, Set switches 1, 5, and 7 to ON.
Insert the card in the same slot on CPU 1.

- 20** Remove the original MDU/FDU.

- 21** Insert the NTND16 MDU or NTND15 FDU.

Do not place the MDU next to a power converter.

Note: The MDU requires power and 3 adjacent card slots. Refer to *Disk drive upgrade procedures* (553-3001-251).

- 22 If using MDU/MSI, attach the NTND80 cable between the MDU and MSI on CPU 1. If using FDU/FDI, attach the cable between the FDU and FDI on CPU1. Set the ENB/DIS faceplate switch to ENB.
- 23 Insert **Target A1** and B1 disks. Enter **EDD <CR>** to initiate datadump. Be sure the datadump is successful before moving on.
- 24 Set the CMA 1 ENB/DIS faceplate switch to DIS. Disconnect the CMA cables from the faceplate. **Disconnect the top cable first.** Remove the CMA from CPU 1.
- 25 Set the NTND10 CMA ENB/DIS switch to DIS. Verify that pins 1 and 2 are set on jumper J3 on the NTND10 CMA.
- 26 Insert the NTND10 CMA card into CPU 1. Connect the cables to the CMA card. **Connect the bottom cable first.**
- 27 Remove the Memory card from CPU 1.
- 28 Insert the NTND09 Memory card in the same slot.
- 29 Replace the original ROM on CPU 1 with the NTND08 ROM. Refer to "Procedure 9: Install a new Read Only Memory card" on page 163 for ROM replacement instructions.
- 30 Set the NTND10 CMA 1 ENB/DIS faceplate switch to ENB.
- 31 An automatic reload may occur at this point. If it does not, press the Reload button on CPU 1. The following messages print out on your TTY. Verify any other messages.

SYS000

SYS0092

SYS0093 INHIBITS 000012A

SYS0511

SYS0091

SYS0090

CONV RLS x ISSUE xx TO RLS x ISSUE xx

CONVERSION PROCESS COMPLETED

DONE

INI000

Note: When sysload is complete, midnight routines will begin. Log in to the system to stop the procedures. You cannot interrupt LD 43.

- 32 Set the time and date in LD 02. Note that if Call Detail Recording (CDR) is used, system message ERR225 will appear. This is normal.

LD 02

STAD dd mm yyyy hh mm ss Set Time and Date.

dd = day (for example, 05 for the fifth)
mm = month (for example, 09 for September)
yyyy = year (2 or 4 digits, for example 92 or 1992)
hh = hour (in 24-hour time, for example, 13:00 for 1:00 pm)
mm = minute (for example, 25)
ss = seconds (for example, 00)

- 33 Update the database to reflect the release 18 features. Refer to *X11 input/output guide* (553-3001-400), and *X11 features and services* (553-3001-305) for complete explanations. Be sure to update your memory, floppy disk types, and hard disk.

in LD 17

LD 17

REQ	CHG
TYPE	CFN
ADAN	CHG HDK 0
NUMD	1, (2)
FTYP	3S

- 34 Print site data listed in Table 10. Verify all information is correct. Make corrections if necessary.

To complete the parallel reload process, go to "Complete the RT conversion" on page 73.

If the system fails to load, or SYSxxxx messages indicate data corruption, back out of the parallel reload process by performing the following steps.

Back out of the RT conversion

- 1 Place CPU 1 into normal with the MAINT/NORM switch.
- 2 Disable and unseat the temporary SDI card from CPU 1. Reconnect the CRT or TTY cable to the original port.

- 3 Disable and remove the QPC584L MSI or QPC742F FDI card from CPU 1. Remove the Release 18 data cartridge from the card.
- 4 Insert the **Source** QPC742/QPC584 card and data cartridge. Be sure the **Source** data cartridge is installed. Set the ENB/DIS faceplate switch to ENB.
- 5 Remove the NTND16 MDU or NTND15 FDU.
- 6 Insert the **Source** MDU/FDU. Connect the original cable between the MSI/FDI and the MDU/FDU.
- 7 Insert the **Source** A1 and B1 disks in the MDU/FDU.
- 8 Set the NTND10 CMA ENB/DIS faceplate switch to DIS. Disconnect the CMA cables. **Disconnect the top cable first.** Remove the NTND10 CMA.
- 9 Insert the **Source** CMA card. Be sure it is faceplate-disabled. Connect the original CMA cables. **Connect the bottom cable first.**
- 10 Remove the NTND09 Memory card.
- 11 Insert the **Source** memory card.
- 12 Replace the NTND08 ROM card with the **Source** ROM card. Refer to "Procedure 9: Install a new Read Only Memory card" on page 163 for instructions.
- 13 Set the CMA 1 ENB/DIS faceplate switch to ENB.
- 14 Set the QPC584/QPC742 card ENB/DIS faceplate switch to ENB.
- 15 Log in and type **ENLT**. This software-enables the QPC584/QPC742 card.

- 16 Load LD 35. Enable the CMA, and memory in CPU 1. Enabling memory may take a few minutes.

LD 35

ENL CMA 1

Enable the CMA in CPU 1.

ENL 10

Enable the memory in CPU 1.

- 17 Get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU

Get the status of the CPUs.

STAT CMA

Get CMA status.

STAT EXT

Get the extender status.

STAT MEM

Get the memory status.

- 18 Clear the display, and clear major and minor alarm in CPU 0.

CDSP

Clear the displays.

CMAJ

Clear major alarms.

CMIN ALL

Clear all minor alarms.

- 19 Place CPU 0 into Normal by setting the MAINT/NORM faceplate switch to NORM.

- 20 Test twice and switch CPUs.

TCPU

Test the CPUs.

TCPU

Test the CPU again.

SCPU

Switch the CPUs.

CDSP

Clear display in CPU 1.

Get out of overlay.

- 21 Type **ENLT**. This software enables the QPC584/QPC742 card.

- 22 Load LD 35. Test and switch CPUs.

LD 35

TCPU

Test the CPUs.

SCPU

Switch the CPUs.

- 23 Type ******** to exit overlay.

- 24 Set the QPC84 Power Monitor card ENL/DIS faceplate switch to ENB (if equipped).

You are now out of the parallel reload process. Verify system operation. Go to "Procedure 12: Postconversion procedure" on page 301.

Complete the RT conversion

- 1 Log in to the system on CPU 1.
- 2 Set the time and date in LD 02. Note that if Call Detail Recording (CDR) is used, system message ERR225 will appear. This is normal.

Note: The system stops time when coming out of parallel reload. Up to 90 seconds may be lost. Check the time again when this procedure is complete.

LD 02

STAD dd mm yyyy hh mm ss

Set Time and Date.

dd day (for example, 05 for the fifth)

mm= month (for example, 09 for September)

yy = year (2 or 4 digits, for example 92 or 1992)

hh = hour (in 24-hour time, for example, 13:00 for 1:00 pm)

mm = minute (for example, 25)

ss = seconds (for example, 00)

- 3 Load LD 22 and print the **Target** peripheral software version. The **Source** peripheral software version was printed in the pre-conversion procedure. If there is a difference between the **Source** and **Target** peripheral software version, a forced download will occur during initialization when coming out of parallel reload. The system initialization will take longer and established calls on IPE will be dropped.

LD 22

REQ

PRT

TYPE

PSWV

- 4 Disable and unseat the temporary SDI card from CPU 1. Reconnect the CRT or TTY cable to the original port.

CAUTION

Call processing will be interrupted.

Perform these next steps carefully. This is the point at which your service is interrupted. Calls in process will be interrupted, especially if Peripheral Software Download takes place.

Perform the next 2 steps in succession.**This is when call processing is interrupted; some calls may be dropped.**

- 5 Place CPU 0 into Normal by setting the MAINT/NORM faceplate switch to NORM.

- 6 Initialize CPU 1 by pressing the MAN INT button.

If the system does not initialize within 20 seconds, press the MAN INT button again.

The MSDL and MISP cards available with X11 release 18 and later download peripheral software after initialization. When these cards are present and the peripheral software versions have changed, wait for PSDL completion messages before continuing.

- 7 Test call processing. This includes, but is not limited to, the following.

Make internal, external and network calls.
Check attendant console activity.
Check DID trunks.

- 8 Set the QPC584/QPC742 card ENB/DIS faceplate switch to DIS in CPU 0. Remove the MSI/FDI from CPU 0.

- 9 Install the Release 18 data cartridge on the QPC584L MSI or QPC742F FDI. If using the QPC584L, set switches 1, 5, and 7 to ON.
Insert the card in the same slot on CPU 1.

- 10 If using MDU/MSI, attach the NTND80 cable between the MDU and MSI on CPU 0.

If using FDU/FDI, attach the cable between the FDU and FDI on CPU 0.
Set the ENB/DIS faceplate switch to ENB.

- 11 Set the CMA 0 ENB/DIS faceplate switch to DIS. Disconnect the CMA cables from the faceplate. **Disconnect the top cable first.**
Remove the CMA from CPU 0.

- 12 Set the ENB/DIS switch to DIS on the NTND10 CMA card.
Verify pins 1 and 2 are set on jumper at J3 on the NTND10 CMA card.

- 13 Insert the NTND10 CMA card in CPU 0.
Connect the cables to the CMA card. **Connect the bottom cable first.**

- 14 Remove the Memory card from CPU 0.

- 15 Insert the NTND09 Memory card in the same slot on CPU 0.
- 16 Replace the ROM in CPU 0 with the NTND08 ROM. Refer to "Procedure 9: Install a new Read Only Memory card" on page 163 for ROM replacement instructions.
- 17 Set the NTND10 CMA 0 ENB/DIS faceplate switch to ENB.
- 18 Log back in and verify time and date. Update the time and date, if necessary.

LD 02	
TTAD	Verify time and date.
STAD dd mm yyyy hh mm ss	Set Time and Date.
TTAD	Verify time and date.

- 19 Enable the CMA, and memory in CPU 0. Enabling memory may take a few minutes.

LD 35	
ENL CMA 0	Enable CMA 0.
ENL 00	Enable the memory in CPU 0.

- 20 Clear the display, and clear major and minor alarms on CPU 1.

CDSP	Clear the displays on CPU 1.
CMAJ	Clear major alarm.
CMIN ALL	Clear minor alarm.

- 21 Place CPU 1 into normal by setting the MAINT/NORM faceplate switch to NORM.

- 22 Get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.

- 23** Test twice and switch CPUs. Clear the display and test the CPUs again.

TCPU	Test the CPUs.
TCPU	Test CPUs again.
SCPU	Switch the CPUs.
CDSP	Clear display.
TCPU	Test the CPUs again.
****	Exit overlay.

- 24** Type **ENLT**. This software enables the QPC584/QPC742 card.

- 25** Load LD 35 and switch CPUs.

LD 35
SCPU

- 26** Get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.

- 27** Load an overlay to verify data cartridge operation.

- 28** Set the QPC84 Power Monitor card ENB/DIS faceplate switch to ENB (if equipped).

You have now completed the conversion to X11 release 18. Go to "Procedure 12: Postconversion procedure" on page 301.

Convert the XT/71 to X11 release 18

- 1** Perform the pre-conversion steps as shown in "Procedure 1: Preconversion procedure" on page 35.
- 2** Load LD 35 and get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

LD 35	
STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.

3 Test and switch CPUs.

TCPU	Test the CPUs.
SCPU	Switch the CPUs.

4 Get the status of the other CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.

5 Ensure CPU 0 is enabled (CPU 1 is idle).

6 If equipped, set the QPC84/QPC173 Power Monitor card (in CPU cabinet) ENL/DIS faceplate switch to DIS. Do not remove the card.

7 Place CPU 0 into Maintenance by setting the MAINT/NORM faceplate switch to MAINT.

8 List the enabled memories. Disable the memories and CMA in CPU 1.

LENL	List enabled memories.
DIS 10	Disable CPU 1 memory (10, 11, 12 if equipped).
DIS CMA 1	Disable CMA 1.

9 Set the QPC215 Segmented Bus Extender ENB/DIS faceplate switch to DIS in CPU 1 only.

10 If using the QPC775 Clock Controller card, load LD 60 and software-disable clock 1. Then hardware-disable clock controller 1.

LD 60	
SSCK 0	Get the status of clock 0.
SSCK 1	Get the status of clock 1.
SWCK	Switch system clock to make clock 0 active (if necessary).
DIS CC 1	Disable clock controller 1.

Set the QPC775 ENB/DIS faceplate switch to DIS in CPU 1.

11 Type **** to exit overlay.

12 Type **DIST**. This software disables the QPC584/QPC742 in CPU 0.

13 Set the QPC584/QPC742 ENB/DIS faceplate switch to DIS in CPU 0.

- 14 Get a temporary Serial Data Interface card. Use a spare. Verify the baud rate. If it does not match the TTY, output characters may be garbled. Be sure the card is configured exactly as the existing maintenance TTY device.
- 15 Place the temporary SDI card in a vacant slot in CPU 1.
- 16 Set the temporary SDI card ENB/DIS faceplate switch to ENB. Connect a local TTY, or a modem for a remote TTY, to the temporary SDI card.
- 17 If an MDU is equipped, remove the QPC584 card from CPU 1 and set switch 3, position 4 (SW3-4) to OFF.
- 18 Set the MAINT/NORM switch to MAINT in CPU 1. This will cause a sysload. If the sysload does not begin, press the RLD button on CMA 1 only.

The following messages will print out on your TTY. The CMA and SDI light will go out, and the disk drives will run. The following SYS messages will appear (may differ slightly depending on the X11 release). Check for dial tone following the DONE and INI000 messages.

SYS000
SYS092
SYS093
SYS511
SYS091
SYS090
SYSLOAD RLS: xx
ISSUE: x

DONE

INI000

Note: When sysload is complete, midnight (daily) routines will begin. Logging in to the system temporarily interrupts the midnight routines.

- 19 Load LD 43 from the **Source** disk.

LD 43
EDD000 indicates LD 43 is loaded

- 20 When EDD000 appears, remove the QPC584/QPC742 card from CPU 1.

- 21 Install the Release 18 data cartridge on the QPC584L.
Set switches 1, 5, and 7 to ON. Insert the QPC584L MSI in the same slot in CPU 1.
- 22 Remove the original MDU/FDU.
- 23 Insert the NTND16 MDU.
Do not place the MDU next to a power converter.
Note: The MDU requires power and 3 adjacent card slots. Refer to *Disk drive upgrade procedures* (553-3001-251).
- 24 Attach the cables between the MDU and the MSI on CPU 1. Set the QPC584L ENB/DIS faceplate switch to ENB.
- 25 Insert **Target** A1 and B1 disks. Enter **EDD <CR>** to initiate the data dump. Be sure the data dump is successful before moving on.
- 26 Set the CMA 1 ENB/DIS faceplate switch to DIS. Disconnect the CMA cables from the faceplate. **Disconnect the top cable first.**
Remove the CMA from CPU 1.
- 27 Set the NTND10 CMA ENB/DIS switch to DIS.
Verify that pins 1 and 2 are set on jumper J3 on the NTND10 CMA.
- 28 Insert the NTND10 CMA card into CPU 1.
Connect the cables to the CMA card. **Connect the bottom cable first.**
- 29 Remove Memory cards from CPU 1.
- 30 Insert NTND09 Memory cards in the same slots in CPU 1.
- 31 Replace the original ROM in CPU 1 with the NTND08 ROM. Refer to "Procedure 9: Install a new Read Only Memory card" on page 163 for ROM replacement instructions.
- 32 Set the NTND10 CMA 1 ENB/DIS faceplate switch to ENB.

- 33** An automatic reload may occur at this point. If it does not, press the Reload button on CPU 1. The following messages appear.

SYS000
SYS0092
SYS0093 INHIBITS 000012A
SYS0511
SYS0091
SYS0090
CONV RLS x ISSUE xx TO RLS x ISSUE xx

CONVERSION PROCESS COMPLETED
DONE

INI000

Note: When sysload is complete, midnight routines will begin. Log in to the system to stop the procedures. You cannot interrupt LD 43.

- 34** Set the time and date in LD 02. Note that if Call Detail Recording (CDR) is used system message ERR225 will appear. This is normal.

LD 02

STAD dd mm yyyy hh mm ss Set Time and Date.

dd = day (for example, 05 for the fifth)

mm = month (for example, 09 for September)

yyyy = year (2 or 4 digits, for example 92 or 1992)

hh = hour (in 24-hour time, for example, 13:00 for 1:00 pm)

mm = minute (for example, 25)

ss = seconds (for example, 00)

- 35** Update the database to reflect the X11 release 18 features. Refer to *X11 input/output guide* (553-3001-400), and *X11 features and services* (553-3001-305) for complete explanations. Be sure to update your memory, floppy disk types, and hard disk.

in LD 17

REQ	CHG
TYPE	CFN
ADAN	CHG HDK 0
NUMD	1, (2)
FTYP	3S

- 36** Print system data listed in Table 10. Verify all information is correct. Make corrections if necessary.

Go to "Complete the XT/71 conversion" on page 84 to finish this process.

If the system fails to load, or SYSxxxx messages indicate data corruption, back out of the parallel reload process by performing the following steps.

Back out of the XT/71 conversion

- 1** Place CPU 1 into Normal with the MAINT/NORM switch.
- 2** Disable and unseat the temporary SDI card from CPU 1. Reconnect the CRT or TTY cable to the original port.
- 3** Disable and remove the QPC584L MSI card from CPU 1. Remove the Release 18 data cartridge from the card.
- 4** Insert the **Source** QPC742/QPC584 card and data cartridge. Be sure the **Source** data cartridge is installed. Set the ENB/DIS faceplate switch to ENB.
- 5** Remove the NTND16 MDU.
- 6** Insert the **Source** MDU/FDU. Connect the original cable between the MSI/FDI and the MDU/FDU.
- 7** Insert the **Source** A1 and B1 disks in the MDU/FDU.
- 8** Set the NTND10 CMA ENB/DIS faceplate switch to DIS. Disconnect the CMA cables. **Disconnect the top cable first.** Remove the NTND10 CMA.

- 9 Insert the **Source** CMA card. Be sure it is faceplate disabled.
Connect the original CMA cables. **Connect the bottom cable first.**
- 10 Remove the NTND09 Memory cards.
- 11 Insert the **Source** memory cards.
- 12 Replace the NTND08 ROM card with the **Source** ROM card. Refer to "Procedure 9: Install a new Read Only Memory card" on page 163 for instructions.
- 13 Set the CMA 1 ENB/DIS faceplate switch to ENB.
- 14 Set the QPC584/QPC742 card ENB/DIS faceplate switch to ENB.
- 15 Log in and type **ENLT**. This software-enables the QPC584/QPC742 card.

- 16** Load LD 35. Enable the CMA, and memories in CPU 1. Enabling memory may take a few minutes.

LD 35	
ENL CMA 1	Enable the CMA in CPU 1.
ENL 10	Enable the memory in CPU 1 (10, 11, 12 if equipped).

- 17** Set the QPC215 SBEs faceplate switch to ENB.

- 18** Get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.

- 19** Clear the display, and clear major and minor alarms in CPU 0.

CDSP	Clear the displays.
CMAJ	Clear major alarms.
CMIN ALL	Clear all minor alarms.

- 20** Place CPU 0 into Normal by setting the MAINT/NORM faceplate switch to NORM.

- 21** Test twice and switch CPUs.

TCPU	Test the CPUs.
TCPU	Test the CPU again.
SCPU	Switch the CPUs.
CDSP	Clear display in CPU 1.
****	Get out of overlay.

- 22** Type **ENLT**. This software enables the QPC584/QPC742 card.

- 23** Load LD 35. Test and switch CPUs.

LD 35	
TCPU	Test the CPUs.
SCPU	Switch the CPUs.

- 24** Type ******** to exit overlay.

- 25 If using the QPC775 Clock Controller card, hardware-enable clock controller 1. Load LD 60 and enable clock 1 in the software.

Set the QPC775 ENB/DIS faceplate switch to ENB in CPU 1.

LD 60

ENL CC 1 Enable clock controller 1.

SSCK 0 Get the status of clock 0.

SSCK 1 Get the status of clock 1.

- 26 If using the QPC471 Clock Controller card and PRI/DTI is equipped, load LD 60. Check clock tracking status. If necessary, force the clock to track on primary reference.

LD 60

SSCK 0 Get the system clock status for clock 0.

SSCK 1 Get the system clock status for clock 1.
If the clock is not tracking, DTI061 is printed.

TRCK PCK Force the clock to track on primary reference.

- 27 Set the QPC84/QPC173 Power Monitor card (in the CPU cabinet) ENB/DIS faceplate switch to ENB (if equipped).

You are now out of the parallel reload process. Verify system operation. Go to "Procedure 12: Postconversion procedure" on page 301.

Complete the XT/71 conversion

- 1 Log in to the system on CPU 1.
- 2 Set the time and date in LD 02. Note that if Call Detail Recording (CDR) is used, system message ERR225 will appear. This is normal.

Note: The system stops time when coming out of parallel reload. Up to 90 seconds may be lost. Check the time again when this procedure is complete.

LD 02

STAD dd mm yyyy hh mm ss Set Time and Date.

dd = day (for example, 05 for the fifth)

mm = month (for example, 09 for September)

yyyy = year (complete, for example, 1991)

hh = hour (in 24-hour time, for example, 13:00 for 1:00 pm)

mm = minute (for example, 25)

ss = seconds (for example, 00)

- 3 Load LD 22 and print the **Target** peripheral software version. The **Source** peripheral software version was printed in the pre-conversion procedure. If there is a difference between the **Source** and **Target** peripheral software version, a forced download will occur during initialization when coming out of parallel reload. The system initialization will take longer and established calls on IPE will be dropped.

LD 22	
REQ	PRT
TYPE	PSWV

- 4 If using the QPC775 Clock Controller card, hardware-enable clock controller 1. Load LD 60 and enable clock 1 in the software.

Set the QPC775 ENB/DIS faceplate switch to ENB in CPU 1.

LD 60	
ENL CC 1	Enable clock controller 1.
SSCK 0	Get the status of clock 0.
SSCK 1	Get the status of clock 1.

- 5 Disable and unseat the temporary SDI card from CPU 1. Reconnect the CRT or TTY cable to the original port.
- 6 Set the QPC215 SBE ENB/DIS faceplate switch to ENB in CPU 1.

CAUTION

Call processing will be interrupted

Perform the next steps carefully. This is the point at which your service is interrupted. Calls in process will be interrupted, especially if Peripheral Software Download takes place.

Perform the next two steps in succession.

This is the point at which call processing is interrupted; some calls may be dropped.

- 7 Set the QPC215 SBE ENB/DIS faceplate switch to DIS in CPU 0.

- 8 Initialize CPU 1 by pressing the MAN INT button.

If the system does not initialize within 20 seconds, press the MAN INT button again.

The MSDL and MISP cards available with X11 release 18 and later download peripheral software after initialization. When these cards are present and the peripheral software versions have changed, wait for PSDL completion messages before continuing.

- 9 Test call processing. This includes, but is not limited to, the following.

Make internal, external, and network calls.

Check attendant console activity.

Check DID trunks.

- 10 Place CPU 0 into Normal by setting the MAINT/NORM faceplate switch to NORM.

- 11 Set the QPC584/QPC742 card ENB/DIS faceplate switch to DIS in CPU 0. Remove the MSI/FDI from CPU 0.

- 12 Install the Release 18 data cartridge on the QPC584L.
Set switches 1, 5, and 7 to ON. Insert the QPC584L MSI in the same slot in CPU 0.

- 13 Attach the NTND80 cable between the NTND16 MDU and the QPC584L MSI on CPU 0.

- 14 Set the QPC584L MSI ENB/DIS faceplate switch to ENB on CPU 0.

- 15 Set the CMA 0 ENB/DIS faceplate switch to DIS. Disconnect the CMA cables from the faceplate. **Disconnect the top cable first.**
Remove the CMA from CPU 0.

- 16 Set the ENB/DIS switch to DIS on the NTND10 CMA card.
Verify pins 1 and 2 are set on the jumper at J3 on the NTND10 CMA card.

- 17 Insert the NTND10 CMA card in CPU 0.
Connect the cables to the CMA card. **Connect the bottom cable first.**

- 18 Remove the Memory cards from CPU 0.

- 19 Insert NTND09 Memory cards in memory slots beginning with 0 (immediately to the left of the CMA card).

20 Replace the ROM in CPU 0 with the NTND08 ROM. Refer to "Procedure 9: Install a new Read Only Memory card" on page 163 for ROM replacement instructions.

21 Set the NTND10 CMA 0 ENB/DIS faceplate switch to ENB.

22 Set the QPC215 SBE ENB/DIS faceplate switch to ENB in CPU 0.

23 Log back in and verify time and date. Update the time and date, if necessary.

LD 02

TTAD

Verify time and date.

STAD dd mm yyyy hh mm ss Set Time and Date.

TTAD

Verify time and date.

24 Enable the CMA, and enable memories in CPU 0. Enabling memory may take a few minutes.

LD 35

ENL CMA 0

Enable CMA 0.

ENL 00

Enable the memory in CPU 0 (00, 01, 02 if equipped).

25 Clear the display, and clear major and minor alarms on CPU 1.

CDSP

Clear the displays on CPU 1.

CMAJ

Clear major alarm.

CMIN ALL

Clear minor alarm.

26 Place CPU 1 into Normal by setting the MAINT/NORM faceplate switch to NORM.

27 Get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU

Get the status of the CPUs.

STAT CMA

Get CMA status.

STAT EXT

Get the extender status.

STAT MEM

Get the memory status.

28 Test twice and switch CPUs. Clear the display and test CPUs again.

TCPU

Test the CPUs.

TCPU

Test CPUs again.

SCPU

Switch the CPUs.

CDSP

Clear display.

TCPU Test the CPUs again.
******** Exit overlay.

29 Type **ENLT**. This software-enables the QPC584/QPC742 card.

30 Load LD 35 and switch CPU.

LD 35
SCPU

31 Get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.

32 If using the QPC471 Clock Controller card and PRI/DTI is equipped, load LD 60. Check clock tracking status. If necessary, force the clock to track on primary reference.

LD 60	
SSCK 0	Get the system clock status for clock 0.
SSCK 1	Get the system clock status for clock 1.
	If the clock is not tracking, DTI061 is printed.
TRCK PCK	Force the clock to track on primary reference.

33 Set the QPC84/QPC173 Power Monitor card (in the CPU cabinet) ENB/DIS faceplate switch to ENB (if equipped).

You have now completed the conversion to X11 release 18.
Go to "Procedure 12: Postconversion procedure" on page 301.

Procedure 4: Convert to later issue of the same release

CAUTION

To avoid damaging equipment from electrostatic discharge, wear a properly connected anti-static wrist strap when working on or near Meridian 1 equipment.

Note: This procedure does not apply to options 51C, 61C, 81, or 81C. When upgrading from one issue to another on an option 51C, 61C, 81 or 81C, the procedure is the same as that for upgrading from one release to another. Refer to the appropriate procedure for your system:

- For option 51C without IODU/C: “Convert with Automatic Inline Conversion: Option 51C (without IODU/C)” on page 48
- For option 51C with IODU/C: “Option 51C software conversion” on page 147
- For option 61C, 81, or 81C without IODU/C: “Parallel reload the 61C/81/81C” on page 102
- For options 61C, 81, or 81C with IODU/C: “You are now done with your parallel reload. Go to “Procedure 12: Postconversion procedure” on page 301.” on page 129

Use the procedure in this section to convert from one issue of software to another within the same release on systems *other* than options 51C, 61C, 81, and 81C. When upgrading from one issue to another within the same release, no additional conversion media is needed. If you are upgrading from one issue to another within the same release and adding software packages, you must also replace the data cartridge.

With X11 release 16.65 and later, patches do not need to be removed prior to conversion. When performing a data dump (EDD), an EHM500 message is printed, rather than a list of patch numbers.

If converting from 15.53, 14.41, or earlier, you must have the patches removed prior to converting. Data corruption may occur if you do not remove the patches prior to conversion.

If converting from release 19 or later, a plus sign (+) will appear next to the software issue number in LD 22 if a patch is included in your software.

Be sure you insert the A disk into drive A, and the B disk in drive B.

- 1 Perform the steps in the pre-conversion procedure ("Procedure 1: Preconversion procedure" on page 35) if operating a single CPU system. Perform the parallel reload procedure ("Procedure 6: Performing a parallel reload" on page 101) if operating a dual CPU system.

- 2 Load LD 43 from the **Source** disk.

LD 43

EDD000 Indicates LD 43 is loaded.

- 3 When you see EDD000, disable the QPC584, NT9D34, or QPC742 card in CPU 1 by setting the ENB/DIS faceplate switch to DIS.
- 4 If an MDU or SMDU is equipped, remove the QPC584 or NT9D34 card and:
 - for QPC584 cards, set position 4 on switch 3 (SW3-4) to OFF
 - for NT9D34 cards, set position 4 on switch 2 (SW2-4) to OFF
- 5 Perform this step if you are also adding software packages: Remove the **Source** data cartridge from the QPC584, NT9D34, or QPC742 card. Replace it with the **Target** data cartridge.

- 6 Reinsert the QPC584, NT9D34, or QPC742 card and set the ENB/DIS faceplate switch to ENB.
- 7 Remove both **Source** disks, and insert both **Target** disks (A1 and B1). Dump to the **Target** disks.

EDD

DATADUMP COMPLETE

Output when data dump is successful.

BACKING UP DISK B1

Output when hard drive is equipped.

EDD034

BACKUP FAILED

This appears when the QPC584 has SW3-4 OFF or the NT9D34 card has SW2-4 OFF. This is not an error.

[.]

Signifies completion of data dump.

If the data dump is not successful, do not proceed with the conversion. Contact your technical support personnel.

- 8 On a dual CPU system, perform a sysload on CPU 1 only by pressing the RLD button.

On a single CPU system, perform a sysload by pressing the RLD button. The data is automatically converted. Conversion is complete when you see the **DONE** message.

- 9 The following sysload and initialization messages are output on the TTY connected to CPU 1.

SYS000

SYS092

SYS093

SYS511

SYS091

SYS090

DONE

INI000

CAUTION

System information will be lost.

With Incremental Software Management (ISM) in X11 release 15.55 and higher, if SYS message 4327, 4328, 4329, or 4330 appears at sysload, perform a sysload of **Source** system disks. Order ISM disks with sufficient system parameters configured. Contact your Northern Telecom representative.

If you are doing a parallel reload, go to "Completing the parallel reload on the NT/RT/61" on page 118.

If you are on a single CPU system, go to "Procedure 12: Postconversion procedure" on page 301 for post-conversion procedures.

Procedure 5: Using a three-disk or four-disk configuration

These procedures describe how install system software and convert the customer database using a three-disk software package. If you have a release 17 or release 19 software, use the procedure below. If you have release 20 software, use the procedure that begins on page 96.

X11 releases 17 and 19

X11 releases 17 and 19 require a three-disk configuration for XT and 71 systems. This method takes place with three floppy disks labeled A1, A2, and B1. Disk A2 is a continuation of disk A1.

To support this procedure, a QPC584 card (vintage F4, K, or later) or an NT9D34 card is required. Other vintages cause the system to initialize when you attempt to load an overlay not located on the A1 disk.

The following overlays can be accessed from the A1 disk. In the event of hard drive failure, these overlays can be accessed from the floppy. Other LDs may also be available, depending on the disk space available, but only these listed are guaranteed to be accessible.

LDs 17, 22, 32, 34, 37, 43, 44, 45, 47, 48, 60, 96 with X11 release 17

LDs 17, 22, 32, 34, 37, 43, 44, 60, 96 with X11 release 19 and later

- 1 Load LD 43 from the **Source** release disk.
- 2 Remove the QPC584 or NT9D34 card and:
 - for QPC584 cards, set position 4 on switch 3 (SW3-4) to OFF
 - for NT9D34 cards, set position 4 on switch 2 (SW2-4) to OFF

- 3 Remove the **Source** data cartridge from the QPC584 or NT9D34 card and replace it with the **Target** data cartridge.
- 4 Reinsert the QPC584 or NT9D34 card and set the ENB/DIS faceplate switch to ENB.
- 5 Put **Target** disks A1 and B1 into the floppy disk drives.
- 6 Enter EDD to initiate a data dump to disks A1 and B1.

DATADUMP COMPLETE Output when data dump is successful.

BACKING UP DISK B1 Output when hard drive is equipped.

EDD034

BACKUP FAILED This appears when the QPC584 card has SW3-4 OFF, or when the NT9D34 card has SW2-4 OFF. This is not an error.

[.] Signifies completion of data dump.

If the data dump is not successful, do not proceed with the conversion. Contact your technical support personnel.

- 7 Replace the ROM card if necessary. See "Procedure 9: Install a new Read Only Memory card" on page 163.
- 8 Perform the sysload from the **Target** disks. The system does not prompt you to insert the A2 disk, because it is not needed for sysload.
- 9 This step is required for new hard drives only. If you are reconfiguring an existing hard drive, go on to step 11. Refer to *X11 input/output guide* (553-3001-400) for complete details concerning these prompts.

X11 release 17 and earlier

LD 17

REQ CHG

TYPE CFN

IOTB YES

ADAN CHG HDK 0

NUMD 1, (2)

FTYP (3), 3S

X11 release 18 later
LD 17
REQ CHG
TYPE CFN
ADAN CHG HDK 0
NUMD 1, (2)
FTYP 3S

You can now restore the hard disk from the floppies with the following steps. Perform a data dump to two sets of the backup disks only. Leave one set of the **Target** disks unconverted, with no database, until you are sure the system converted successfully.

- 10** If you are performing a parallel reload, go to “Completing the parallel reload on the NT/RT/61” on page 118.
- 11** Load LD 43 from the **Source** disk.
- 12** Type RES to initiate the floppy to hard disk restore.
- 13** After completing the A1 restore, the system prompts you to insert A2. The B1 disk restore is performed automatically after the A2 restore is complete. After completing the restore, reinsert A1 into the A disk drive.
- 14** If an MDU or SMDU is equipped, set the ENB/DIS faceplate switch on the QPC584 or NT9D34 card to DIS.
- 15** Remove the QPC584 or NT9D34 card and:
 - for QPC584 cards, set position 4 on switch 3 (SW3-4) to ON
 - for NT9D34 cards, set position 4 on switch 2 (SW2-4) to ON
- 16** Reinsert the QPC584 or NT9D34 card, and set the ENB/DIS switch to ENB.
- 17** Enter **EDD** to perform a data dump for backups.

The upgrade is now complete. From this point on, further data dumps will affect both hard drive and floppies.

Now go to “Procedure 12: Postconversion procedure” on page 301.

X11 release 20 and later

STE, RT, NT, XT systems and options 21E, 51, 61, and 71 require a four-disk configuration when installing release 20. This method takes place with four floppy disks labeled A1, A2, A3 and B. Disk A2 is a continuation of disk A1 and A3 is a continuation of disk A2. Unattended sysload is not supported.

A1 and B disks should remain in the MDU/SMDU when the system is idle, or unattended.

Use this procedure only if your system is running on release 19. If your system is not already running release 19, use "Procedure 3: Convert from one X11 release to a later release" on page 47 to convert to release 19, or the appropriate chapter in *Upgrade system installation to X11 release 24* (553-3001-258) to upgrade your system hardware and software.

To support this procedure, a QPC584 card (vintage F4, K, or later) or an NT9D34 card is required. Other vintages cause the system to initialize when you attempt to load an overlay not located on the A1 disk.

Note: Release 20 requires that an NT9D33 SMDU (option 21E and STE systems) or NTND16 MDU (all other systems covered by this procedure) be installed in the system.

Only LD 43 can be accessed from disk A1. No other overlays can be accessed from disks A1, A2 or A3 until a RESTORE to the hard drive has been done.

- 1 Log into the system.
- 2 Load LD 43 from the **Source** release disk.
- 3 If an MDU or SMDU is equipped, remove the QPC584 or NT9D34 card and:
 - for QPC584 cards, set position 4 on switch 3 (SW3-4) to OFF
 - for NT9D34 cards, set position 4 on switch 2 (SW2-4) to OFF
- 4 Remove the **Source** data cartridge from the QPC584 or NT9D34 card and replace it with the **Target** data cartridge.
- 5 Reinsert the QPC584 or NT9D34 card and set the ENB/DIS faceplate switch to ENB.
- 6 Put **Target** disks A1 and B into the floppy disk drives.

- 7 Enter EDD to initiate a data dump to disks A1 and B.

DATADUMP COMPLETE

Output when data dump is successful.

BACKING UP DISK B

Output when hard drive is equipped.

EDD034

BACKUP FAILED

This appears when the QPC584 card has SW3-4 OFF, or when the NT9D34 card has SW2-4 OFF. This is not an error.

[.]

Signifies completion of data dump.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 8 Perform the sysload from the **Target** disks. When prompted, remove disk A1 from the A drive and insert disk A2. The system will prompt again, to remove disk A2, and insert A3. System messages similar to the following will appear:

SYS000

INSERT DISK A3 INTO DRIVE A

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 9 Immediately following the system initialization sequence, remove disk A3 from drive A and **insert disk A1**.

- 10 Log into the system.

- 11 Copy the contents of the data disks to the hard disk by entering

LD 43

to load the program

RES

to copy the entire contents of the backup to the hard disk

Insert additional system disks when requested.

- 12 When the RESTORE sequence is complete, remove disk A3 from drive A and insert disk A1.
- 13 Set the ENB/DIS switch on each MSI or EMSI card to DIS.
- 14 Remove the QPC584 or NT9D34 card and:
 - for QPC584 cards, set position 4 on switch 3 (SW3-4) to ON
 - for NT9D34 cards, set position 4 on switch 2 (SW2-4) to ON
- 15 Reinsert the QPC584 or NT9D34 card, and set the ENB/DIS switch to ENB.
- 16 This step is required for new hard drives only. Refer to *X11 input/output guide* (553-3001-400) for complete details concerning these prompts:
LD 17

REQ	CHG
TYPE	CFN
ADAN	CHG HDK 0
NUMD	1, (2)
FTYP	3S
- 17 If you are performing a parallel reload, go to “Completing the parallel reload on the NT/RT/61” on page 118.

18 Perform a data dump:

LD 43 to load the program
EDD to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" displays on the terminal, proceed with the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

**** to exit the program

19 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.

The upgrade is now complete. From this point on, further data dumps will affect both hard drive and floppies.

Now go to "Procedure 12: Postconversion procedure" on page 301.

Procedure 6: Performing a parallel reload

CAUTION

To avoid damaging equipment from electrostatic discharge, wear a properly connected anti-static wrist strap when working on or near Meridian 1 equipment.

Note: This procedure assumes your existing system is not equipped with the Input Output Disk Unit with CD-ROM (IODU/C) card. **For software conversion procedures using CD-ROM, refer to “Procedure 7: CD-ROM software conversion” on page 131.**

Use the parallel reload procedures to convert from one X11 release to a later release and to perform software upissues within the same X11 release. These parallel reload procedures are for software conversions only. Do *not* use this procedure for any other purpose.

These procedures must only be performed by someone with knowledge of the system and these procedures. Follow these procedures exactly.

Parallel reloads can be done from either CPU. For the purposes of this document, we begin with CPU 0. To better understand the process, read through the entire procedure before you begin.

CAUTION

Check your CPU labels.

Be sure you are working with CPU 0 or CPU 1 as designated throughout the parallel reload procedures.

Parallel reload the 61C/81/81C

This procedure is for software conversions and upissues only. It is not an installation, upgrade, or maintenance procedure. Refer to system documentation for complete details regarding the option 61C/81/81C.

Before beginning this procedure, verify the following:

- Determine whether your system requires additional memory. Refer to "Procedure 10: Increasing memory" on page 169 for X11 release memory requirements.
- The hard disks must be synchronized. Refer to *X11 input/output guide* (553-3001-400) for synchronization information.

- 1 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 2 When "EDD000" appears on the terminal, enter
EDD to begin the data dump
- 3 When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 4 Load LD 137 and get the status of the hard disks to be sure they are synchronized. If not, synchronize them before proceeding.

LD 137

STAT

Get the status of the hard disks.

SYNC

Synchronize the hard disks (if necessary).

Synchronization may take up to 50 minutes.

- 5 Load LD 135 and get the status of the CPs (Core Processors), CNIs, and memories.

LD 135

STAT CPU

Get the status of both CPs and memories.

STAT CNI

Get the status of all configured CNIs.

- 6 Test the standby (inactive) CP. Then switch CPs, and test again.

TEST CPU

Test the standby (inactive) CP.

SCPU

Switch CPs.

TEST CPU

Test the standby (inactive CP).

Note: Testing the CPs can take up to 20 minutes for each test. When the test is complete, the memories are automatically synchronized.

- 7 Be sure CP 0 is active and CP1 is standby. You may need to switch CPs again:

STAT CPU

- 8 Verify that CMDU 0 is active. You may need to switch CMDUs.

LD 137

STAT

Get the status of CMDU and IOP.

SWAP

Switch CMDUs (if necessary).

- 9 Connect a terminal to the CPSI port in Core 1 to J25 of the I/O panel at the back of the core. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.

- 7 data bits
- 1 stop bit
- Space parity
- Full duplex
- XON protocol

- 10 Place CP 0 in Maintenance by setting the MAINT/NORM switch to MAINT.
- 11 In Core 1, disable the NT6D65 Core to Network Interface (CNI) cards by setting the ENB/DIS faceplate switches to DIS.
- 12 In Core 1, set the ENB/DIS switch on the IOP or IOP/CMDU to DIS. Remove the IOP or IOP/CMDU and replace the QMM42 data cartridge with the **Target** cartridge.
- 13 In Core 1, reseal the IOP or IOP/CMDU, and set the faceplate switch to ENB.
- 14 Install Target installation disk 1 (labeled A1) into the CMDU or IOP/CMDU in Core 1.
- 15 In Core 1, perform the following three steps in uninterrupted sequence:
 - press and hold the MAN RST button on the CP card
 - set the MAINT/NORM switch on the CP card to MAINT
 - release the MAN RST button

A sysload will begin (cold start) and the system will automatically load the software install program.

Note: If you need more complete information, refer to Procedure 11: Software Installation Tool.

- 16 When the Main Menu appears, select the following options in sequence when you are prompted to do so:
 - <a> to install software CP-BOOT ROM and IOP-ROM (for NT6D66 CP cards) **or** CP-BOOT ROM and IOP-ROM (for NT9D19 CP, NT5D10 or NT5D03 cards)
 - <y> to start installation
 - <a> to continue with upgrade
- 17 Follow all screen directions requiring disk insertion from the software upgrade package into CMDU 1 or IOP/CMDU 1. A number of disks will be requested.
- 18 Following the software installation, select the following options:
 - <a> to continue with ROM upgrade
 - <a> to continue with ROM upgrade (CP-BOOT ROM)
 - <y> to start installation
 - <a> to continue with ROM upgrade (IOP-ROM)
- 19 Remove any diskettes from CMDU 1 or IOP/CMDU 1.
- 20 Select the following options to quit and reload the system:
 - <q> to quit
 - <y> to confirm quit
 - <a> to reboot the system

The system will automatically perform a sysload and system initialization during which several messages will appear on the system terminal.

Note: SYS4695 is not an error message. This message is cleared when you perform a datadump.

Following system initialization, perform the steps in “Completing the parallel reload on the option 61C/81/81C” on page 106 to complete the software conversion.

If the system fails to load, or system messages indicate data corruption, back out of the parallel reload process by performing the steps in “Backing out of the parallel reload on the option 61C/81/81C” on page 111.

Completing the parallel reload on the option 61C/81/81C

- 1 If necessary, replace system patches. Contact your technical support.
- 2 Load LD 22 and print the **Target** peripheral software version. The **Source** peripheral software version was printed in the pre-conversion procedure. If there is a difference between the **Source** and **Target** peripheral software version, a forced download will occur during initialization when coming out of parallel reload. The system initialization will take longer and established calls on IPE will be dropped.

LD 22
REQ
TYPE

PRT
PSWV

CAUTION

Call processing will be interrupted

Perform the next steps carefully. This is the point at which your service is interrupted. Calls in process will be interrupted, especially if Peripheral Software Download takes place.

Perform the next 4 steps in succession. Call processing will be switched from Core 0 to Core 1.

- 3 In Core 0, set the DIS/ENB faceplate switch on the IOP or IOP/CMDU card to DIS.
- 4 In Core 0, disable the NT6D65 CNI cards by setting the ENB/DIS faceplate switches to DIS.
- 5 In Core 1, enable the NT6D65 CNI cards by setting the ENB/DIS faceplate to ENB.
- 6 In Core 1, press the MAN INT button.

- 7 Test call processing. This includes, but is not limited to, the following.
 Check for dial tone.
 Make internal, external, and network calls.
 Check attendant console activity.
 Check DID trunks.
 Check any auxiliary processors.

Note: From this point forward you will be updating Core 0 with **Target** software.
- 8 Move the CPSI port cable from J25 on Core 1 to J25 on Core 0.
- 9 In Core 0, remove the IOP or IOP/CMDU card and replace the **Source** data cartridge with the **Target** cartridge.
- 10 Reseat the IOP or IOP/CMDU card and set the faceplate switch to ENB.
- 11 Insert **Target** installation disk 1 (labeled A1) into the CMDU or IOP/CMDU in Core 0.
- 12 On Core 0, press and release the MAN RST button.
- 13 Perform **one** of the following software/ROM upgrades, depending on whether your system is equipped with NT9D19/NT5D10/NT5D03 CP cards or NT6D66 CP cards:

For systems equipped with NT9D19, NT5D10 or NT5D03 CP cards:

- When the Main Menu appears, select the following options in sequence when you are prompted to do so:
 - <a> to install software, CP-BOOT ROM and IOP-ROM
 - <y> to start installation
 - <a> to continue with upgrade
- Follow all screen directions requiring disk insertion into CMDU 0 or IOP/CMDU 0. A number of disks will be requested.
- Following the software installation, select the following options:
 - <a> to continue with ROM upgrade
 - <a> to continue with ROM upgrade (CP-BOOT ROM)
 - <y> to start installation
 - <a> to continue with ROM upgrade (IOP-ROM)

- Remove any diskettes from CMDU 0 or IOP/CMDU 0.
- Select the following options to quit and reload the system:
 - <q> to quit
 - <yes> to confirm quit
 - <a> to reboot the system

The system will reboot. Wait for the “INI” and “DONE” messages to display before continuing.

Note: It will take at least 70 seconds between the “DONE” and “INI” messages.

- Continue with step 14.

For systems equipped with NT6D66 CP cards:

- From the main menu choose:
 - <e> to upgrade the CP ROM
 - <y> to start installation
 - to upgrade from floppy disk (insert disk 4 when you are prompted to do so)
 - <y> to continue installing CP-ROM

Follow the on-screen directions until the CP ROM upgrade is complete.

- From the main menu choose:
 - <f> to upgrade the IOP ROM
 - <y> to start installation
 - to upgrade from floppy disk
- Follow on-screen directions until the IOP ROM upgrade is complete.
- Remove any diskettes from the floppy drive.

- Select the following options to quit and reload the system:

<q>	to quit
<yes>	to confirm quit
<a>	to reboot the system

The system will reboot. Wait for the “INI” and “DONE” messages to display before continuing. It will take at least 70 seconds between the “DONE” and “INI” messages.

Note: Refer to Procedure 11: Software Installation Tool if necessary.

- 14 In Core 0, enable the NT6D65 CNI cards by setting the ENB/DIS faceplate switches to ENB.
- 15 In Core 0, perform the following steps in uninterrupted sequence:
 - press and release the MAN RST button
 - when SYS700 messages appear on CP 0 LCD display, set the MAINT/NORM switch to NORM.

Within 60 seconds, the LCD will display the following messages, confirming the process.

RUNNING ROM OS ENTERING CP VOTE

An “HWI534” message from the CPSI or SDI port indicates the start of memory synchronization. Within 10 minutes, an HWI533 message on Core 1 CPSI or SDI TTY indicates the memory synchronization is taking place. Wait until the memory synchronization is complete before continuing.

- 16 Set the MAINT/NORM switch on the CP card in Core 1 to NORM and perform a redundancy sanity test.

LD 135	
STAT CNI	Get status of CNI cards.
STAT CPU	Get status of CPU and memories.
TEST CNI core slot	Test each inactive CNI card.

Note: Testing the CPs and CNI cards and synchronizing memory can take up to 20 minutes for each test. When the CP test is complete, the memories are automatically synchronized.

- 17 Switch Cores, and test the other side.

TEST CPU	Test the standby (inactive) Core.
SCPU	Switch Cores.
TEST CNI core slot	Test each inactive CNI card.

Note: Testing the CP cards can take up to 20 minutes for each test. When the test is complete, the memories are automatically synchronized.

- 18 Clear the display, and minor alarms on both Cores.

CDSP	Clear the displays on the Cores.
CMAJ	Clear major alarm.
CMIN ALL	Clear minor alarm.

- 19 Get the status of the Cores, CNIs, and memories

STAT CPU	Get the status of both Cores.
STAT CNI	Get the status of all configured CNIs and memories.

- 20 Load LD 137 and synchronize hard disks. Synchronization may take up to 50 minutes. To be sure that the contents of CMDU 1 are copied to CMDU 0, verify that CMDU 0 is disabled.

LD 137	
STAT	Get the status of both CMDUs, IOPs, and redundancy.
SYNC	Enter "Yes" to synchronize disks. Wait until the memory synchronization successfully completes before continuing.

- 21 Get the status of the CMDUs and be sure CMDU 0 is active. Switch if necessary.

LD 137	
STAT	Get the status of CMDU and IOP.
SWAP	Switch CMDU (if necessary).
STAT CMDU	Get the status of the CMDUs. Be sure the same CMDU and CPU are active.

- 22 Insert the B1 disk into both IOP/CMDUs or CMDUs for backup. Load LD 43 and datadump. This creates a backup on the floppy disk in the active CMDU.

LD 43

EDD

Data dump complete (or database backup complete) is printed when the data dump has been successfully completed. Investigate any EDD messages. Refer to *X11 input/output guide* (553-3001-400).

You are now done with your parallel reload. Go to "Procedure 12: Postconversion procedure" on page 301.

Backing out of the parallel reload on the option 61C/81/81C

- 1 Place the original **Source** installation disk 1 in CMDU or IOP/CMDU in Core 1.
- 2 In Core 1, set the ENB/DIS switch on the NT6D63 IOP or NT5D20 IOP/CMDU to DIS. Remove the card and replace the data cartridge with the **Source** cartridge.
- 3 In Core 1, reseal the IOP or IOP/CMDU and set the faceplate switch to ENB.
- 4 In Core 1, press the MAN RST button.
- 5 When the install screen appears, select the following options in sequence, and insert the **source B** diskette containing the customer database when you are prompted to do so.
 - to install software, database, CP-ROM, and IOP-ROM
 - <a> to start installation
 - <a> continue with upgrade

Follow all screen direction requiring disk insertion. A number of disks will be requested.

- 6 When the database installation screen appears, select the following:
 - <c> to transfer the previous system database (DBMT)
(choose this option if the database was converted on-site)
 - or
 - <a> to install customer database (choose this option if the database was sent to Northern Telecom for conversion)

- <a> to continue with the database install
- <y> to delete the hardware infrastructure database files from the hard disk

7 When the ROM installation screen appears, select the following:

- <a> to continue with the ROM upgrade

8 Following the database installation, upgrade the ROMs:

- <a> to continue with ROM upgrade (CP-BOOT)
- <y> to start installation
- <a> to continue with ROM upgrade (IOP-ROM)

9 Remove the disk from the IOP/CMDU or CMDU in Core 1.

10 From the main menu, select the following options to quit and reload the system:

- <q> to quit
- <y> to confirm quit

11 Remove any diskettes from the floppy drive, and type

- <a> to reboot the system

12 In Core 1, perform the following steps:

- enable the NT6D65 CNI cards by setting the ENB/DIS faceplate switches to ENB
- press and release the MAN RST button on the CP card

When SYS700 messages appear on the CP 1 LCD display

- set CP 1 MAINT/NORM switch to NORM.

Within 60 seconds, the LCD will display the following messages, confirming the process.

**RUNNING ROM OS
ENTERING CP VOTE**

An "HWI534" message from the CPSI or SDI port indicates the start of memory synchronization. Within 10 minutes, an "HWI533" message on Core 0 CPSI or SDI TTY indicates the memory synchronization is complete. Wait until the memory synchronization is complete before continuing.

13 In Core 0, set the MAINT/NORM switch on the CP card to NORM.

14 Perform a redundancy sanity test.

LD 135	
TEST CPU	Test the standby (inactive) Core.
SCPU	Switch the Cores.
CDSP	Clear display.
TEST CPU	Test the standby (inactive) Core.
SCPU	Switch the Cores.

Note: Testing the CPs can take up to 20 minutes for each test. When the test is complete, the memories are automatically synchronized.

15 Load LD 137 and synchronize hard disks. Synchronization may take up to 50 minutes. To be sure the contents of CMDU 0 are copied to CMDU 1, use the STAT command to verify that CMDU 1 is disabled.

LD 137	
STAT CMDU	Get the status of both CMDUs.
SYNC	Synchronize disks.

You are now out of the parallel reload process, and have returned to the **Source** software. Go to "Procedure 12: Postconversion procedure" on page 301.

Parallel reload the NT/RT/61

- 1 Perform the pre-conversion steps as shown in "Procedure 1: Preconversion procedure" on page 35.
- 2 Load LD 35 and get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

LD 35	
STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.
- 3 Test and switch CPUs.

TCPU	Test the CPUs.
SCPU	Switch the CPUs.
- 4 Get the status of the other CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.
- 5 Ensure CPU 0 is enabled (CPU 1 is idle).
- 6 If equipped, set the QPC84 Power Monitor card ENL/DIS faceplate switch to DIS. Do not remove the card.
- 7 Place CPU 0 into Maintenance by setting the MAINT/NORM faceplate switch to MAINT.
- 8 List the enabled memory. Disable the memory and CMA in CPU 1.

LENL	List enabled memory.
DIS 10	Disable CPU 1 memory.
DIS CMA 1	Disable CMA 1.
****	to exit the program
- 9 Type **DIST**. This software-disables the QPC584/QPC742 in CPU 0.

- 10** If using the QPC775 Clock Controller card, software disable clock 1. Then hardware disable clock controller 1.

LD 60	get the status of clock 0
SSCK 0	get the status of clock 1
SSCK 1	switch system clock to make clock 0 active (if necessary)
DIS CC 1	disable clock controller 1
****	to exit the program

- 11** Set the QPC584/QPC742 ENB/DIS faceplate switch to DIS in CPU 0.
- 12** Get a temporary Serial Data Interface card. For option 61 systems, a Serial Data Interface paddle board may be used. Use a spare. Verify the baud rate. If it does not match the TTY, output characters may be garbled. Be sure the card is configured exactly as the existing maintenance TTY device.
- 13** Place the temporary SDI card in a vacant slot in CPU 1. If using the SDI paddle board, place it in slot 12 in the rear of CPU 1.
- 14** Set the temporary SDI card ENB/DIS faceplate switch to ENB. Connect a local TTY, or a modem for a remote TTY, to the temporary SDI card.
- 15** If an MDU is equipped, set the QPC584 card ENB/DIS faceplate switch to DIS in CPU 1. Remove the card and set switch 3, position 4 (SW3-4) to OFF. Reinsert the card and reenale the ENB/DIS faceplate switch.

- 16 Place CPU 1 into Maintenance by setting the MAINT/NORM switch to MAINT. This will cause a sysload. If the sysload does not begin, press the RLD button on CMA 1 **only**.

The following messages will print out on your TTY. The CMA and SDI lights will go out, and the disk drives will run. The following SYS messages will appear (may differ slightly depending on the X11 release).

```
SYS000
SYS092
SYS093
SYS511
SYS091
SYS090
SYSLOAD RLS: xx
ISSUE: x
```

DONE

INI000

Note: When sysload is complete, midnight (daily) routines will begin. Logging in to the system temporarily interrupts the midnight routines.

At this time you can begin your software conversion. See “Procedure 2: Converting from X11 release 8 or 9 to X11 release 10” on page 43 through “Procedure 5: Using a three-disk or four-disk configuration” on page 93.

To complete the parallel reload process, go to “Completing the parallel reload on the NT/RT/61” on page 118.

If the system fails to load, or SYSxxxx messages indicate data corruption, back out of the parallel reload process by performing the following steps.

Backing out of the parallel reload on the NT/RT/61

- 1 Place CPU 1 into Normal by setting the MAINT/NORM faceplate switch to NORM.
- 2 Reconnect the CRT or TTY cable to the original port. Disable and unseat the temporary SDI card from CPU 1.

If an MDU is equipped, return the QPC584 in CPU 1 to its original state: disable, remove, and set SW3-4 to ON. Reinsert the card.

- 3 Set the QPC584/QPC742 card ENB/DIS faceplate switch to ENB in CPU 0.
- 4 Log in and type **ENLT**. This software-enables the QPC584/QPC742 card.
- 5 List disabled memories. Enable the CMA, and memory in CPU 1. Enabling the memories may take several minutes.

LD 35	
LENL	List the enabled memories.
ENL CMA 1	Enable the CMA in CPU 1.
ENL 10	Enable the memory in CPU 1.
- 6 Get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled. Clear the displays and minor alarms.

STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.
CDSP	Clear the displays.
CMIN ALL	Clear all minor alarms.
- 7 Place CPU 0 into Normal by setting the MAINT/NORM switch to NORM.
- 8 Test twice and switch CPUs.

TCPU	Test the CPUs.
TCPU	Test the CPU again.
SCPU	Switch the CPUs.
CDSP	Clear display in CPU 1.
****	Get out of overlay.
- 9 Type **ENLT**. This software-enables the QPC584/QPC742 card.
- 10 Load LD 35. Test and switch CPUs.

LD 35	
TCPU	Test the CPUs.
SCPU	Switch the CPUs.
- 11 Type ******** to exit overlay.
- 12 Set the QPC84 Power Monitor card ENB/DIS faceplate switch to ENB (if equipped).

You are now out of the parallel reload process. Verify system operation. Refer to "Procedure 12: Postconversion procedure" on page 301.

Completing the parallel reload on the NT/RT/61

When you have finished converting the software according to Procedures 2 through 5, use these steps to complete the parallel reload process.

- 1 Log in to the system on CPU 1.
- 2 Set the time and date in LD 02. Note that if Call Detail Recording (CDR) is used system message ERR225 will appear. This is normal.

Note: The system stops time when coming out of parallel reload. Up to 90 seconds may be lost. Verify the time when this procedure is complete.

LD 02

STAD dd mm yyyy hh mm ss Set Time and Date

dd = day (for example, 05 for the fifth)

mm = month (for example, 09 for September)

yyyy = year (last 2 digits or all four, for example 92 or 1992)

hh hour (in 24-hour time, for example, 13:00 for 1:00 pm)

mm = minute (for example, 25)

ss seconds (for example, 00)

- 3 Load LD 22 and print **Target** peripheral software version. The **Source** peripheral software version was printed in the pre-conversion procedure. If there is a difference between the **Source** and **Target** peripheral software version, a forced download will occur during initialization when coming out of parallel reload. The system initialization will take longer and established calls on IPE will be dropped.

LD 22

REQ

PRT

TYPE

PSWV

- 4 Disable and unseat the temporary SDI card from CPU 1. Reconnect the CRT or TTY cable to the original port.

CAUTION

Call processing will be interrupted.

Perform these next steps carefully. This is the point at which your service is interrupted. Calls in process will be interrupted, especially if Peripheral Software Download takes place.

Perform the next two steps in succession.

This is the point at which call processing is interrupted; some calls may be dropped.

- 5** Place CPU 0 into Normal by setting the MAINT/NORM faceplate switch to NORM.

- 6** Initialize CPU 1 by pressing the MAN INT button.

If the system does not initialize within 20 seconds, press the MAN INT button one more time.

Some cards require peripheral software download after initialization. When these cards are present and the peripheral software versions have changed, wait for PSDL completion messages before continuing.

- 7** Test call processing. This test includes, but is not limited to, the following:

Make internal, external, and network calls.

Check attendant console activity.

Check DID trunks.

- 8** Log back in and verify time and date. Update the time and date if necessary.

LD 02

TTAD

STAD dd mm yyyy hh mm ss

TTAD

Verify time and date.

Set Time and Date.

Verify time and date.

- 9** List disabled memory. Enable CMA and memory in CPU 0. Enabling the memory may take several minutes.

LD 35

LDIS

ENL CMA 0

ENL 00

List disabled memory.

Enable CMA 0.

Enable the memory in CPU 0.

- 10** Clear the display, and minor alarm.

CDSP

CMAJ

CMIN ALL

Clear the displays on CPU 1.

Clear major alarm.

Clear minor alarm.

- 11** Place CPU 1 into Normal by setting the MAINT/NORM faceplate switch to NORM.

- 12 Get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.

- 13 Test and switch CPUs. Clear the display and test again.

TCPU	Test the CPUs.
SCPU	Switch the CPUs.
CDSP	Clear the displays.
TCPU	Test the CPUs.
SCPU	Switch the CPUs.

- 14 Get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.

- 15 Type ******** to exit overlay.

- 16 Remove the QPC584/QPC742 card. Replace the **Source** data cartridge with the **Target** cartridge. Reinsert the card.

- 17 Set the QPC584/QPC742 card ENB/DIS faceplate switch to ENB in CPU 0.

- 18 Type **ENLT**. This software-enables the QPC584/QPC742 card.

- 19 Load an overlay to verify data cartridge operation.

- 20 Set the QPC84 Power Monitor card ENB/DIS faceplate switch to ENB, if equipped.

You are now done with your parallel reload.

Now go to "Procedure 12: Postconversion procedure" on page 301.

Parallel reload the XT/71

- 1 Perform the pre-conversion steps as shown in "Procedure 1: Preconversion procedure" on page 35.
- 2 Load LD 35 and get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

LD 35	
STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.
- 3 Test and switch CPUs.

TCPU	Test the CPUs.
SCPU	Switch the CPUs.
- 4 Get the status of the other CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU	Get the status of the CPUs.
STAT CMA	Get CMA status.
STAT EXT	Get the extender status.
STAT MEM	Get the memory status.
- 5 Ensure CPU 0 is enabled (CPU 1 is idle).
- 6 If equipped, set the QPC84/QPC173 Power Monitor card (in the CPU cabinet) ENL/DIS faceplate switch to DIS. Do not remove the card.
- 7 Place CPU 0 into Maintenance by setting the MAINT/NORM faceplate switch to MAINT.
- 8 List the enabled memories. Then disable the memories and CMA in CPU 1.

LENL	List enabled memories.
DIS 10	Disable CPU 1 memory (10, 11, 12 if equipped).
DIS CMA 1	Disable CMA 1.
- 9 Set the QPC215 Segmented Bus Extenders (SBE) ENB/DIS faceplate switch to DIS in CPU 1.

- 10 If using the QPC775 Clock Controller card, load LD 60 and software-disable clock 1. Then hardware-disable clock controller 1.

LD 60

SSCK 0

Get the status of clock 0.

SSCK 1

Get the status of clock 1.

SWCK

Switch system clock to make clock 0 active (if necessary).

DIS CC 1

Disable clock controller 1.

Set the QPC775 ENB/DIS faceplate switch to DIS in CPU 1.

- 11 Type **** to exit overlay.
- 12 Type **DIST**. This software-disables the QPC584/QPC742 in CPU 0.
- 13 Set the QPC584/QPC742 ENB/DIS faceplate switch to DIS in CPU 0.
- 14 Get a temporary Serial Data Interface card. Use a spare. Verify the baud rate. If it does not match the TTY, output characters may be garbled. Be sure the card is configured exactly as the existing maintenance TTY device.
- 15 Place the temporary SDI card in any vacant **non-memory** slot in CPU 1.
- 16 Set the temporary SDI card ENB/DIS faceplate switch to ENB. Connect a local TTY, or a modem for a remote TTY, to the temporary SDI card.
- 17 If an MDU is equipped, set the QPC584 card ENB/DIS faceplate switch to DIS in CPU 1. Remove the card and set switch 3, position 4 (SW3-4) to OFF. Reinsert the card and reenble the ENB/DIS faceplate switch.

- 18** Set the MAINT/NORM switch to MAINT in CPU 1. This will cause a sysload. If the sysload does not begin, press the RLD button on CMA 1 **only**.

The following messages will print out on your TTY. The CMA and SDI lights will go out, and the disk drives will run. The following SYS messages will appear (may differ slightly depending on the X11 release). Check for dial tone following the DONE and INI000 messages.

SYS000

SYS092

SYS093

SYS511

SYS091

SYS090

SYSLOAD RLS: xx

ISSUE: x

DONE

INI000

Note: When sysload is complete, midnight (daily) routines will begin. Logging in to the system temporarily interrupts the midnight routines.

At this time you can begin your software conversion. See Procedures 2 through 5 in this document.

To complete the parallel reload process, go to "Completing the parallel reload on the XT/71" on page 126.

If the system fails to load, or SYSxxxx messages indicate data corruption, back out of the parallel reload process by performing the following steps.

Backing out of the parallel reload on the XT/71

- 1 Place CPU 1 into Normal with the MAINT/NORM faceplate switch.
- 2 Reconnect the CRT or TTY cable to the original port. Disable and unseat the temporary SDI card from CPU 1.

If an MDU is equipped, return the QPC584 in CPU 1 to its original state: disable, remove, and set SW3-4 to ON. Reinsert and enable the card.
- 3 Set the QPC584/QPC742 card ENB/DIS faceplate switch to ENB in CPU 0.
- 4 Log in and type **ENLT**. This software enables the QPC584/QPC742 card.
- 5 List disabled memories. Enable the CMA, and enable memories in CPU 1. Enabling the memories may take several minutes.

LD 35

LENL

List the enabled memories.

ENL CMA 1

Enable the CMA in CPU 1.

ENL 10

Enable the memory in CPU 1 (10, 11, 12 if equipped).

- 6 Get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled. Clear the displays and minor alarms.

STAT CPU

Get the status of the CPUs.

STAT CMA

Get CMA status.

STAT EXT

Get the extender status.

STAT MEM

Get the memory status.

CDSP

Clear the displays.

CMIN ALL

Clear all minor alarms.

- 7 Set the QPC215 SBE ENB/DIS faceplate switch to ENB in CPU 1.
- 8 Place CPU 0 into Normal by setting the MAINT/NORM faceplate switch to NORM.
- 9 Test twice and switch CPUs.

TCPU

Test the CPUs.

TCPU

Test the CPU again.

SCPU

Switch the CPUs.

CDSP

Clear display in CPU 1.

Get out of overlay.

10 Type **ENLT**. This software-enables the QPC584/QPC742 card.

11 Load LD 35. Test and switch CPUs.

LD 35

TCPU

Test the CPUs.

SCPU

Switch the CPUs.

12 Type ******** to exit overlay.

13 If using the QPC775 Clock Controller card, hardware-enable clock controller 1. Load LD 60 and enable clock 1 in the software.

Set the QPC775 ENB/DIS faceplate switch to ENB in CPU 1.

LD 60

ENL CC 1

Enable clock controller 1.

SSCK 0

Get the status of clock 0.

SSCK 1

Get the status of clock 1.

If using the QPC471, Clock Controller card, and PRI/DTI is equipped, load LD 60. Check clock tracking status. If necessary, force the clock to track on primary reference.

LD 60

SSCK 0

Get the system clock status for clock 0.

SSCK 1

Get the system clock status for clock 1.

If the clock is not tracking, DTI061 is printed.

TRCK PCK

Force the clock to track on primary reference.

14 If equipped, set the QPC84/QPC173 Power Monitor card (in the CPU cabinet) ENB/DIS faceplate switch to ENB.

You are now out of the parallel reload process. Verify system operation. Refer to "Procedure 12: Postconversion procedure" on page 301.

Completing the parallel reload on the XT/71

When you have finished converting the software according to Procedures 2 through 5, use these steps to complete the parallel reload process.

- 1 Log in to the system on CPU 1.
- 2 Set the time and date in LD 02. Note that if Call Detail Recording (CDR) is used, system message ERR225 will appear. This is normal.

Note: The system stops time when coming out of parallel reload. Up to 90 seconds may be lost. Verify the time when this procedure is complete.

LD 02

STAD dd mm yyyy hh mm ss Set Time and Date.

dd = day (for example, 05 for the fifth)

mm = month (for example, 09 for September)

yyyy = year (complete, for example, 1991)

hh = hour (in 24-hour time, for example, 13:00 for 1:00 pm)

mm = minute (for example, 25)

ss = seconds (for example, 00)

- 3 Load LD 22 and print **Target** peripheral software version. The **Source** peripheral software version was printed in the pre-conversion procedure. If there is a difference between the **Source** and **Target** peripheral software version, a forced download will occur during initialization when coming out of parallel reload. The system initialization will take longer and established calls on IPE will be dropped.

LD 22

REQ

PRT

TYPE

PSWV

- 4 If using the QPC775 Clock Controller card, hardware-enable clock controller 1. Load LD 60 and enable clock 1 in the software.

Set the QPC775 ENB/DIS faceplate switch to ENB in CPU 1.

LD 60

ENL CC 1

Enable clock controller 1.

SSCK 0

Get the status of clock 0.

SSCK 1

Get the status of clock 1.

- 5 Disable and unseat the temporary SDI card from CPU 1. Reconnect the CRT or TTY cable to the original port.

- 6 Set the QPC215 SBEs ENB/DIS faceplate switches to ENB in CPU 1.

CAUTION

Call processing will be interrupted.

Perform the next steps carefully. This is the point at which your service is interrupted. Calls in process will be interrupted, especially if Peripheral Software Download takes place.

Perform the next 2 steps in succession.

This is the point at which call processing is interrupted; some calls may be dropped.

- 7 Set the QPC215 SBE ENB/DIS faceplate switch to DIS in CPU 0.
- 8 Initialize CPU 1 by pressing the MAN INT button.

If the system does not initialize within 20 seconds, press the MAN INT button again.

Some cards require peripheral software download after initialization. When these cards are present and the peripheral software versions have changed, wait for PSDL completion messages before continuing.
- 9 Test call processing. This includes, but is not limited to, the following.

 Make internal, external, and network calls.
 Check attendant console activity.
 Check DID trunks.
- 10 Set the QPC215 SBE ENB/DIS faceplate switch to ENB in CPU 0.
- 11 Place CPU 0 into Normal by setting the MAINT/NORM faceplate switch to NORM.
- 12 Log back in and verify time and date. Update the time and date if necessary.

 LD 02
 TTAD
 STAD dd mm yyyy hh mm ss
 TTAD

 Verify time and date.
 Set Time and Date.
 Verify time and date.
- 13 Replace the QPC583 or NTND09BA memory card with the NTND09CA 12 MB memory card.

- 14 List disabled memories. Enable CMA, and enable memories in CPU 0. Enabling the memories may take several minutes.

LD 35

LDIS

List disabled memories.

ENL CMA 0

Enable CMA 0.

ENL 00

Enable the memory in CPU 0 (00, 01, 02 if equipped).

- 15 Clear the display and minor alarms.

CDSP

Clear the displays on CPU 1.

CMAJ

Clear major alarm.

CMIN ALL

Clear minor alarms for all customers.

- 16 Place CPU 1 into Normal by setting the MAINT/NORM faceplate switch to NORM.

- 17 Get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU

Get the status of the CPUs.

STAT CMA

Get CMA status.

STAT EXT

Get the extender status.

STAT MEM

Get the memory status.

- 18 Test and switch CPUs. Clear the display and test again.

TCPU

Test the CPUs.

SCPU

Switch the CPUs.

CDSP

Clear the displays.

TCPU

Test the CPUs.

SCPU

Switch the CPUs.

- 19 Get the status of the CPU, CMA, extenders, and memory. Ensure all common equipment is enabled.

STAT CPU

Get the status of the CPUs.

STAT CMA

Get CMA status.

STAT EXT

Get the extender status.

STAT MEM

Get the memory status.

- 20 Type **** to exit overlay.

- 21 Remove the QPC584/QPC742 card. Replace the **Source** data cartridge with the **Target** cartridge. Reinsert the card.

- 22** Set the QPC584/QPC742 card ENB/DIS faceplate switch to ENB in CPU 0.
- 23** Type **ENLT**. This software-enables the QPC584/QPC742 card.
- 24** If using the QPC471 Clock Controller card and PRI/DTI is equipped, load LD 60. Check clock tracking status. If necessary, force the clock to track on primary reference.

LD 60

SSCK 0

Get the system clock status for clock 0.

SSCK 1

Get the system clock status for clock 1.

If the clock is not tracking, DTI061 is printed.

TRCK PCK

Force the clock to track on primary reference.

- 25** Set the QPC84/QPC173 Power Monitor card (in CPU cabinet) ENB/DIS faceplate switch to ENB, if equipped.

You are now done with your parallel reload. Go to "Procedure 12: Postconversion procedure" on page 301.

Procedure 7: CD-ROM software conversion

CAUTION

To avoid damaging equipment from electrostatic discharge, wear a properly connected anti-static wrist strap when working on or near Meridian 1 equipment.

Use the procedures in this section if your system is equipped with NT5D61 Input Output Disk Unit with CD-ROM (IODU/C) card(s). If your system is not equipped with the IODU/C card, do not use these procedures.

The procedures in this section describe how to:

- convert one X11 release to a later release
- perform a software upissue within in the same X11 release
- add new features
- modify Incremental Software Management (ISM) limits

To better understand the process, read through the entire procedure before you begin.

Parallel reload the 61C/81/81C

Note: This procedure does not include instructions for installing new IODU/C cards. To use this procedure, your system must already be equipped with IODU/C cards.

Use the parallel reload procedures to convert from one X11 release to a later release or to upissue software within the same X11 release. These parallel reload procedures are for software conversions only. Do *not* use this procedure for any other purpose. Parallel reloads can be done from either CPU. For the purposes of this document, we begin with CPU 0.

Table 11 summarizes the required steps to perform this procedure.

Table 11
Option 61C, 81, 81C parallel reload summary

Step	Page
1. Verify memory	page 133
2. Perform a data dump	page 133
3. STAT the hardware	page 134
4. Split the Cores	page 135
5. Install software on Core/Net 1	page 136
6. Check for peripheral software download	page 138
7. Switch call processing from Core/Net 0 to Core/Net 1	page 139
8. Test Core/Net 1	page 139
9. Install software on Core/Net 0	page 139
10. Exit split mode	page 141
11. Test Core/Net 0 and 1	page 142
12. Synchronize the hard disks	page 143
13. Perform a data dump	page 144

Verify memory

Determine whether your system requires additional memory. Refer to "Procedure 10: Increasing memory" on page 169 for memory requirements and upgrade procedures.

Perform a data dump

- 1 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program
- 2 When "EDD000" appears on the terminal, enter **EDD** to begin the data dump
- 3 When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, enter ******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

STAT the hardware

- 1 Load LD 137 and get status of the hard disks.

Note: Be sure the hard disks are synchronized. If not, synchronize before proceeding.

LD 137

STAT	Get the status of the hard disks
SYNC	Synchronize hard disks if necessary. Synchronization may take up to 50 minutes
TEST CMDU	Performs hard and floppy disk test.
****	exit program

- 2 Load LD 135 and get status of the CPs, CNIs and memories.

LD 135

STAT CPU	Get the status of both CPs and memory
STAT CNI	Get the status of all configured CNIs

- 3 Test the standby (inactive) CP. Then switch CPs, and test again.

TEST CPU	Test standby (inactive) CP
-----------------	----------------------------

Wait until the terminal returns a complete test message. The message "HWI533 or HWI534" does not mean the test has completed!

SCPU	Switch CPs
TEST CPU	Test the standby (inactive) CP

Note: Testing the CPs can take up to 20 minutes for each test. When the test is complete, the memories are automatically synchronized.

Split the Cores

- 1 Be sure CP 0 is active and CP1 is standby. You may need to switch CPs again:

STAT CPU

**** exit program

- 2 Verify that IODU/C 0 is active. You may need to switch IODU/Cs.

LD 137

STAT Get the status of IODU/C

SWAP Switch IODU/Cs if necessary

**** exit program

- 3 Connect a terminal to the CPSI port in Core/Net 1 to J25 of the I/O panel at the back of the Core/Net. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.

7 data bits, 1 stop bit, Space parity, Full duplex, XON protocol

- 4 Place CP 0 in Maintenance by setting the MAINT/NORM switch to MAINT.
- 5 In Core/Net 1, disable the NT6D65 Core/Net to Network Interface (CNI) cards by setting the ENB/DIS faceplate switches to DIS.

Install software on Core/Net 1

- 1 Place the CP Install disk that corresponds with the installed CP card type into the IODU/C in Core/Net 1.
- 2 Install the CD-ROM into the CD drive:
 - press the button on the CD-ROM drive to open the CD-ROM disk holder
 - place the CD-ROM disk into the holder with the disk label showing
 - use the four tabs to secure the CD-ROM drive
 - press the button again to close the CD-ROM disk holder (don't push the holder in by hand)
- 3 In Core/Net 1, perform the following three steps in uninterrupted sequence:
 - press and hold the MAN RST button on the CP card
 - set the MAINT/NORM switch on the CP card to MAINT
 - release the MAN RST button

A sysload will begin (cold start). Wait for the Main Menu to appear on the terminal before proceeding.

Note 1: If the CD-ROM is not in the CD drive of the IODU/C, the installation procedure will not continue. Please insert the CD-ROM into the drive to continue.

Note 2: If a problem is detected during the system verification, Install stops, prints an error message, and aborts the installation. If the verification is not successful, do not continue; contact your technical support organization.

- 4 Press <CR> to continue.
- 5 Log into the system and enter the time and date, when prompted.
- 6 Initiate the database installation by selecting the following command from the menu:

<u> to Install menu

- 7 Remove the CP Install Program diskette and insert the Keycode diskette, when prompted.

- <a> to continue with keycode validation
- <y> to confirm that the keycode matches the CD-ROM release

- 8 When the Install Menu is displayed, select the following options in sequence when you are prompted to do so

- to install software, database, CP-BOOT ROM, and IOP-ROM

- <a> to verify that the CD-ROM is now in drive

The Installation Status Summary screen appears that lists the options to be installed.

- <y> Yes, start Installation

- <a> Continue with Upgrade

When the ROM installation screen appears, select the following prompts in sequence:

- <a> Continue with ROM Upgrade

The following message appears:

Software Release XXXX was installed successfully on Core 1. All files were copied from CDROM to the hard disk.

Please press <CR> to when ready...

- <a> Continue with ROM upgrade

- <a> Yes, start Installation

- <a> Continue with ROM upgrade

When the Installation Status Summary screen appears, press <CR> when ready...

When the INSTALL MENU appears:

- <d> To install Database only

When the database installation screen appears, insert the first 2 MB database diskettes in the IODU/C.

- <a> to install the customer database

- <y> to start installation

- <a> to continue the database installation

- <y> to load the database

- <a> to continue with ROM upgrade

<cr> Are you sure you want to continue with IOP ROM
<a> to install the IOP-ROM from hard disk
<y> Yes, start installation
<a> to continue with ROM upgrade

The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, Database, CP-BOOTROM, and IOP-ROM were installed.

<cr> press return to continue
<q> to quit (remove any diskettes from the floppy drive)
<y> Yes, to confirm quit
<a> to reboot the system

The system will automatically perform a sysload during which several messages will appear on the system terminal. Wait for "DONE" and then "INI" messages to be displayed before continuing.

If the system fails to load, or system messages indicate data corruption, back out of the parallel reload process by performing the steps in "Backing out of the parallel reload on the option 61C/81/81C" on page 144.

Check for peripheral software download

- 1 Load LD 22 and print Target peripheral software version. The Source peripheral software version was printed during the pre-conversion procedure. If there is a difference between the Source and Target peripheral software version, a forced download will occur during initialization when coming out of parallel reload. System initialization will take longer and established calls on IPE will be dropped.

LD 22

REQ

PRT

TYPE

PSWV

exit program

Switch call processing to Core/Net 1

CAUTION

Call Processing will be interrupted! Perform these next steps carefully. This is the point at which your service is interrupted. Calls in process will be interrupted, especially if Peripheral Software Download takes place. Some calls may be dropped.

Perform the next four steps in succession. Call processing will be switched from Core/Net 0 to Core/Net 1.

- 1** In Core/Net 0, set the DIS/ENB faceplate switch on the IODU/C card to DIS.
- 2** In Core/Net 0, disable the NT6D65 CNI cards by setting the ENB/DIS faceplate switches to DIS.
- 3** In Core/Net 1, enable the NT6D65 CNI cards by setting the ENB/DIS faceplate to ENB.
- 4** In Core/Net 1, press the MAN INT button.

Note: Call processing is now switched from Core/Net 0 to Core/Net 1.

Test Core/Net 1

- 1** Test Call Processing. This includes, but is not limited to the following:
 - Check for dial tone.
 - Make internal, external, and network calls.
 - Check attendant console activity.
 - Check DID trunks.
 - Check any auxiliary processors.

Note: From this point forward you will be upgrading Core/Net 0 with new software.

Install software on Core/Net 0

- 1** Move the CPSI port cable from J25 on Core/Net 1 to J25 on Core/Net 0.

- 2 Set the IODU/C faceplate switch to ENB.
- 3 Insert the CP Install diskette into Core/Net 0.
- 4 Press the MAN RST button on the CP card in Core/Net 0 to reboot the system and start the Software Installation Tool. (The terminal displays SYSLOAD messages during file loading. When SYSLOAD is completed, the NT logo appears.)
- 5 When the NT logo appears, press <CR> to continue.
- 6 When the Main Menu appears, select the following options in sequence:
 - <u> to Install menu
- 7 Remove the CP Install Program diskette and insert the Keycode diskette. Select the following when prompted:
 - <a> to continue with keycode validation
 - <y> to confirm that the keycode matches the CD-ROM release
- 8 When the Install Menu appears, select the following options in sequence to copy the software from Core/Net 1 to Core/Net 0, install CP-software, ROMs, and transfer the database to the redundant disk:
 - <o> to copy system software from the other core
 - <a> to copy /p partition from Core1 to Core 0
 - <a> to continue with upgrade

When the software has copied successfully, you must install CP-software from the hard disk to Flash EEPROM, and install CP-BOOT ROM.

 - <CR> press <CR> when you are ready to continue
 - <y> to start installation
 - <a> to continue with ROM upgrade
 - <y> to start installation
 - <a> to continue with ROM upgrade.

When the installation is complete, the Installation Status Summary screen appears.

 - <CR> to return to the Install Menu

When the Install Menu appears, install IOP-ROM:

 - <f> to install IOP-ROM only

When the Installation Status Summary screen appears:

<y> to start installation
<y> to continue installing IOP-ROM
<a> to continue with ROM upgrade
 When the installation is complete, the Installation Status Summary screen appears.
<CR> to return to the Install Menu
 When the Install Menu appears, install the database:
<d> to install database only
<d> to copy database from the redundant disk
 When the Installation Status Summary screen appears:
<y> to start installation
<a> to continue transferring the database from the redundant disk
 When the Installation Status Summary screen appears, press:
<CR> to return to the Install Menu
 When the Install Menu appears, remove any diskettes in the floppy before rebooting the system:
<q> to quit
<y> to confirm quit
<a> to reboot the system
 Wait for "DONE" and then "INI" messages to be displayed before continuing.

Exiting split mode

- 1 **Connect CPSI port or maintenance SDI port**
- 1 **Enable the NT6D65 CNI cards by setting the ENB/DIS faceplate switch to ENB in Core/Net 0.**
- 2 Perform the following in uninterrupted sequence:
 - **Press and release the MAN RST button in Core/Net 0.**
 - **When SYS700 messages appears on LCD display on Core/Net 0, set the MAINT/NORM switch to NORM in Core/Net 0.**

In 60 seconds, the LCD will display and confirm your processes with:

RUNNING ROM OS
ENTERING CP VOTE

An HWI534 message indicates the start of memory synchronization. In 10 minutes, an HWI533 message on Core/Net 1 CSPI or SDI terminal indicates the memory synchronization is complete.

- 3 In Core/Net 1, set the MAINT/NORM switch on the CP card to NORM.

Test Core/Net 1 and Core/Net 0

- 1 Perform a redundancy sanity test using the following sequence:

LD 135

STAT CNI

Get status of CNI cards

STAT CPU

Get status of CPU and memory

TEST CPU

Test the inactive Core/Net

TEST CNI c s

Test each inactive CNI card

- 2 Switch Cores and test the other side (Core/Net 0)

SCPU

Switch cores

TEST CPU

Test the inactive Core/Net

TEST CNI c s

Test each inactive CNI card

Note: Testing the CP and CNI cards and synchronizing memory can take up to 20 minutes for each test. When the CP test is complete, the CP the memory is automatically synchronized.

- 3 Clear the display and minor alarms on both Cores.

CDSP

Clear the displays on the Cores

CMAJ

Clear major alarms

CMIN ALL

Clear minor alarms

- 4 Get the status of the Cores, CNIs, and memory.

STAT CPU

Get the status of both Cores

STAT CNI

Get the status of all configured CNIs and memory

Note: You may need to execute the STAT CNI command twice before receiving a response from the system.

exit program

Synchronize the hard disks

- 1 Load LD 137 and synchronize the hard disks. Synchronization may take up to 50 minutes. To be sure that the contents of IODU/C 1 are copied to IODU/C 0, verify that IODU/C 0 is disabled.

LD 137

STAT

Get the status of the IODU/C and redundancy

SYNC

Enter "Yes" to synchronize disks. Wait until the memory synchronization successfully completes before continuing.

TEST CMDU

Performs hard and floppy disk test.

- 2 Get the status of the CMDU's and be sure CMDU 0 is active. Switch if necessary.

STAT

Get the status of IODU/C and redundancy

SWAP

Switch CMDU if necessary

STAT CMDU

Get the status of the IODU/Cs. Be sure the same IODU/C and CPU are active.

exit program

Perform a data dump

Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

3 When "EDD000" appears on the terminal, enter

EDD to begin the data dump

4 When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Backing out of the parallel reload on the option 61C/81/81C

1 Place the original **Install disk 1** into the IODU/C in Core/Net 1.

2 In Core/Net 1, press the MAN RST button.

3 Select <u> to initiate the Install Tool.

4 Remove the CP Install diskette and insert the source keycode diskette.

5 Select <a> to continue with keycode validation.

6 When the install screen appears, select the following options in sequence, and insert the **source** database diskette when you are prompted to do so.

 to install software, database, CP-BOOT ROM, and
 IOP-ROM

 <a> to start installation

 <a> continue with upgrade

7 When the database installation screen appears, select the following:

 <c> to transfer the previous system database (DBMT)
 (choose this option if the database was converted on-site)

 or

- <a>** to install customer database (choose this option if the database was sent to Northern Telecom for conversion)
 - <a>** to continue with the database install
 - <y>** to delete the hardware infrastructure database files from the hard disk
- 8** When the ROM installation screen appears, select the following:
 - <a>** to continue with the ROM upgrade
- 9** Following the database installation, upgrade the ROMs:
 - <a>** to continue with ROM upgrade (CP-BOOT)
 - <y>** to start installation
 - <a>** to continue with ROM upgrade (IOP-ROM)
- 10** Remove the disk from the IODU/C in Core/Net 1.
- 11** From the main menu, select the following options to quit and reload the system:
 - <q>** to quit
 - <y>** to confirm quit
- 12** Remove any diskettes from the floppy drive, and type
 - <a>** to reboot the system

13 In Core/Net 1, perform the following steps:

- enable the NT6D65 CNI cards by setting the ENB/DIS faceplate switches to ENB
- press and release the MAN RST button on the CP card

When SYS700 messages appear on the CP 1 LCD display

- set CP 1 MAINT/NORM switch to NORM.

Within 60 seconds, the LCD will display the following messages, confirming the process.

**RUNNING ROM OS
ENTERING CP VOTE**

An "HWI534" message from the CPSI or SDI port indicates the start of memory synchronization. Within 10 minutes, an "HWI533" message on Core/Net 0 CPSI or SDI TTY indicates the memory synchronization is complete. Wait until the memory synchronization is complete before continuing.

14 In Core/Net 0, set the MAINT/NORM switch on the CP card to NORM.

15 Perform a redundancy sanity test.

LD 135

TEST CPU	Test the standby (inactive) Core/Net.
SCPU	Switch the Cores.
CDSP	Clear display.
TEST CPU	Test the standby (inactive) Core/Net.
SCPU	Switch the Cores.

Note: Testing the CPs can take up to 20 minutes for each test. When the test is complete, the memories are automatically synchronized.

16 Load LD 137 and synchronize hard disks. Synchronization may take up to 50 minutes. To be sure the contents of CMDU 0 are copied to CMDU 1, use the STAT command to verify that CMDU 1 is disabled.

LD 137

STAT CMDU	Get the status of both CMDUs.
SYNC	Synchronize disks.
TEST CMDU	Performs hard and floppy disk test.

You are now out of the parallel reload process, and have returned to the **Source** software.

Option 51C software conversion

Use this procedure to convert from one X11 software release to another on option 51C systems only.

Table 11 summarizes the required steps to perform this procedure.

Table 12
Option 51C software conversion summary

Step	Page
1. Verify memory	page 133
2. Perform a data dump	page 133
3. STAT the hardware	page 134
4. Install software	page 136
5. Check for peripheral software download	page 138
6. Test the system	page 139
7. Perform a data dump	page 144

Verify memory

Determine whether your system requires additional memory. Refer to "Procedure 10: Increasing memory" on page 169 for memory requirements and upgrade procedures.

Perform a data dump

- 1 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program
- 2 When "EDD000" appears on the terminal, enter **EDD** to begin the data dump

- 3 When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, enter

to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

STAT the hardware

- 1 Load LD 137 and get status of the hard disk.

LD 137

STAT

Get the status of the hard disks

- 2 Load LD 135 and get status of the CP, CNI and memory.

LD 135

STAT CPU

Get the status of the CP and
memory

STAT CNI

Get the status of the CNI

Install software

- 1 Select the CP Install diskette which matches the Call Processor (CP) type on your system.
- 2 Insert the CP Install diskette into the floppy drive of the IODU/C.
- 3 Press MAN RST on the CP card.

The system will be booted from the floppy and the Install tool will be automatically invoked. The following screen appears

- 4 Press <CR> to continue.
- 5 Log into the system and enter the time and date, when prompted.
- 6 Initiate the database installation by selecting the following command from the menu:

<u> to Install menu
- 7 Remove the CP Install Program diskette and insert the Keycode diskette, when prompted.

<a> to continue with keycode validation
<y> to confirm that the keycode matches the CD-ROM release

- 8 When the Install Menu is displayed, select the following options in sequence when you are prompted to do so

 to install software, database, CP-BOOT ROM, and IOP-ROM

<a> to verify that the CD-ROM is now in drive

The Installation Status Summary screen appears that lists the options to be installed.

<y> Yes, start Installation

<a> Continue with Upgrade

When the ROM installation screen appears, select the following prompts in sequence:

<a> Continue with ROM Upgrade

The following message appears:

Software Release XXXX was installed successfully. All files were copied from CDROM to the hard disk.

Please press <CR> to when ready...

<a> Continue with ROM upgrade

<a> Yes, start Installation

<a> Continue with ROM upgrade

When the Installation Status Summary screen appears, press <CR> when ready...

When the INSTALL MENU appears:

<d> To install Database only

When the database installation screen appears, insert the first 2 MB database diskettes in the IODU/C.

<a> to install the customer database

<y> to start installation

<a> to continue the database installation

<y> to load the database

<a> to continue with ROM upgrade

- <cr> Are you sure you want to continue with IOP ROM
- <a> to install the IOP-ROM from hard disk
- <y> Yes, start installation
- <a> to continue with ROM upgrade

The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, Database, CP-BOOTROM, and IOP-ROM were installed.

- <cr> press return to continue
- <q> to quit (remove any diskettes from the floppy drive)
- <y> Yes, to confirm quit
- <a> to reboot the system

The system will automatically perform a sysload during which several messages will appear on the system terminal. Wait for "DONE" and then "INI" messages to be displayed before continuing.

Check for Peripheral Software Download

- 1 Load LD 22 and print Target peripheral software version. The Source peripheral software version was printed during the pre-conversion procedure. If there is a difference between the Source and Target peripheral software version, a forced download will occur during initialization when coming out of parallel reload. System initialization will take longer and established calls on IPE will be dropped.

LD 22

REQ

PRT

TYPE

PSWV

Test call processing

- 1 Test Call Processing. This includes, but is not limited to the following:
 - Check for dial tone.
 - Make internal, external, and network calls.
 - Check attendant console activity.
 - Check DID trunks.
 - Check any auxiliary processors.

Complete the upgrade

- 1** Perform a redundancy sanity test using the following sequence:

LD 135

STAT CNI

Get status of CNI card

STAT CPU

Get status of CPU and memory

- 2** Clear the display and minor alarms..

CDSP

Clear the displays on the Cores

CMAJ

Clear major alarms

CMIN ALL

Clear minor alarms

exit program

The software conversion is complete.

Adding features

Adding new features and/or modifying Incremental Software Management (ISM) limits requires the installation of a new keycode. Keycodes are delivered via diskette or electronic file transfer and installed using the key management commands in LD 143 or the Meridian 1 Software Installation Tool.

This section describes how to install a keycode to activate features and/or modify ISM limits using the commands listed in Table 13.

Table 13
LD 143 commands

Keycode delivery	Keycode Installation command
Diskette	Use the KNEW_F0 or KNEW_F1 command in LD 143
Electronic file on a PC	Use the KUPL command in LD 143, followed by the KNEW_HD command (see note)
Faxed to the customer site (paper-based keycode)	Use the KMAN command in LD 143, followed by the KNEW_HD command
Note: If the keycode is downloaded from the Keycode Distributor Server (KDS), use the KUPL command to install the keycode. Refer to the "Distributor Keycode Application" section in this document for more information about KDS.	

Using keycode diskettes

With multi-users, access to LD 143 is limited to the system administrator or support personnel. Limited Access Password (LAPW) defines the users to this overlay to limit access to the configured database.

- 1 Insert the keycode diskette into the floppy drive on the IODU/C card.
- 2 In LD 143, print the pending keycode contents. Use "KSHO F0" if your keycode is on the diskette in the floppy drive on Core/Net 0, or "KSHO F1" if your keycode is on the diskette in the floppy drive on Core/Net 1:

LD 143 to load the program
KSHO F0 print the contents of the candidate keycode
or
KSHO F1

- 3 Perform the KDIF command. Use "KDIF F0 REC" if the keycode diskette is inserted in the floppy drive on Core/Net 0, or "KDIF F1 REC" if the keycode is inserted in the floppy drive on Core/Net 1:

KDIF F0 REC to print the differences between the candidate and
or the current keycodes
KDIF F1 REC

**** to exit LD 143

- 4 Perform the KNEW command:

LD 143 to load the program

KNEW HD to copy the keycode to the other Core/Net

**** to exit the program

- 5 Reboot the system at a time that will minimize service impact.

The new keycode will not take effect until the system reboots.

Using electronic keycode files

Note: To perform this procedure, a PC running Windows 95® is required.

In this procedure, an electronic keycode file is "copied" from a PC and then "pasted" into the Meridian 1 system using LD 143. The new keycode must reside on the PC prior to performing the following procedures.

- 1 On the PC, access the Meridian 1 system (via a modem) with a communication application.
- 2 Shrink the Meridian 1 system window and move it to one side of the screen.
- 3 Load the Keycode Management Program (LD 143).
LD 143 to load program
KUPL upload keycode to the target system

4 On the PC, from the Start menu:

- select the Program header,
- select the Main header,
- open the File Manager
- then open the keycode folder.

Note: The entire keycode must be copied. This includes the information header that proceeds the keycode.

5 Move the cursor from the keycode folder to the keycode file.

6 Select the File header and then select Rename to rename the keycode file with an extension (i.e., keycode.txt). This will allow you to associate the file to a text application.

7 Select Association under the File header and associate the file with a text application (i.e., Note pad).

8 Double click the keycode.txt file and it will now open as a text file to view the content.

9 Shrink the window and move it to one side of the screen, adjacent to the Meridian 1 system window.

10 Highlight the keycode file or on the Edit menu "Select All" and then select "Copy" to copy the keycode.

11 In the Meridian 1 system window, "paste" the new keycode into LD 143.

12 Press <CR> in the system window. This will upload the keycode. The new keycode file will be saved onto the Meridian 1 system hard disk.

- 13 The menu will prompt you to store the new keycode on a floppy diskette. This is an option, you may select to save the keycode by choosing <y>, or if not, select <n>. Complete the step if <y> is selected.

Insert a new floppy diskette or all data will be erased on the diskette currently in the system.

- Remove the backup disk.
- Insert a new floppy diskette (not the backup diskette) for the new keycode.
- Select <y> on the screen menu and press enter. The new keycode will be stored in the floppy diskette
- Remove the keycode diskette and replace it with the database diskette. Label the keycode diskette.

- 14 If there are no validation errors, use the command.

CAUTION

The keycode will be enabled at the next sysload if the KNEW command is executed. To provide appropriate site support, it is highly recommended that execution of KNEW be conducted onsite prior to sysload and not conducted remotely.

KNEW HD to validate the new keycode.

The uploaded keycode is validated against the security device. It will reside on the user's hard disk and on a backed up floppy disk.

- 15 If there are validation errors, repeat steps. If validation is not successful, contact your technical support organization.
- 16 If successful, exit the overlay and go the next step.

- Exit.

**** to exit the program

- 17 The new keycode with new capabilities will be activated at the next restart (sysload). To minimize service impact, manually restart the system at an appropriate time to enable new capabilities.

Entering the keycode manually

Before beginning this procedure, you must have a copy of the keycode. The keycode can reside on paper or as an electronic file. To enter the keycode manually, you will type the keycode in LD 143 as 21 lines, 16 characters per line.

- 1 Log into the system.
- 2 Load the Keycode Management Program (LD 143).
LD 143 to load program
KMAN manually enter the keycode to the target system
- 3 Type keycode file, 21 lines of 16 characters each. Press return to go to the next line.
Note: When entering the keycode, do not enter the header information that proceeds the keycode.
- 4 Type "end" at line 22 to end the process.
- 5 Press enter. The new keycode file will be saved on the hard disk.
- 6 If there are no validation errors, use the command.
KNEW to validate the new keycode.
 The uploaded keycode is validated against the security device. It will reside on the user's hard disk and can be backed up on a floppy disk.
- 7 If there are validation errors, repeat steps 2- 6. If validation is not successful, contact your technical support organization. If successful, continue to the next step.

- 8 The menu will prompt you the option of storing the new keycode on a floppy diskette.

Insert a new floppy diskette or all data will be erased on the diskette currently in the system.

- Remove the backup diskette.
- Insert a new floppy diskette (not the backup diskette) for the keycode.
- Select <y> on the screen menu and press enter. The new keycode will be stored in the floppy diskette
- Remove the keycode diskette and replace it with the database diskette. Label the keycode diskette.
- Exit.

to exit the program

- 9 The new keycode with new capabilities will be activated at the next restart (sysload). To minimize service impact, manually restart the system at an appropriate time to enable new capabilities.

Procedure 8: Installing new data cartridges and option packages

CAUTION

To avoid damaging equipment from electrostatic discharge, wear a properly connected anti-static wrist strap when working on Meridian 1 equipment.

Note: This procedure does not apply to systems equipped with NT5D61 IODU/C cards.

The QMM42 Data Cartridge contains the system ID number and equipped software options. The software will not load without the correct data cartridge. In options 51C, 61C, 81 and 81C (Commercial Processor systems), the data cartridge is installed on the NT6D63 I/O Processor (IOP) card or NT5D20 IOP/CMDU card. In systems other than the Commercial Processor systems, the data cartridge is installed on the QPC584 Mass Storage Interface (MSI) card, NT9D34 Enhanced Mass Storage Interface (EMSI) card, or QPC742 Floppy Disk Interface (FDI) card.

If desired, a new option package on the same release may be added by installing a new data cartridge and loading floppy disks that contain the new package. The cartridge ID must match the disks installed in the system. A sysload is required to enable new packages.

Note: Be sure to observe anti-static precautions.

Systems equipped with NT6D63 IOP or NT5D20 IOP/CMDU cards

Perform steps 1 through 6 to install a new data cartridge. If you are also adding new software packages, perform steps 1 through 7.

- 1 Set the ENB/DIS switch on the IOP or IOP/CMDU card to DIS.
- 2 Unhook the locking devices on the card; pull it out of the card cage.
- 3 Remove the data cartridge anchor screw and unplug the cartridge from the connectors on the card.
- 4 Plug the replacement data cartridge into the connectors on the card. Lightly tighten the anchor screw.
- 5 Reinsert the card and hook the locking devices.
- 6 Set the ENB/DIS faceplate switch on the IOP or IOP/CMDU card to ENB.
- 7 If you are adding new software packages, refer to the following procedure to reinstall system software:
 - “Installing software and ROMs” on page 253 for systems equipped with NT9D19 or NT5D10 Call Processor cards
 - “Installing software and ROMs” on page 279 for systems equipped with NT6D66 Call Processor cards

Note: Following software installation, a sysload is required to enable the new package(s).

Systems equipped with QPC584, NT9D34, and QPC742 cards

Perform steps 1 through 8 to install a new data cartridge. If you are adding new software packages, perform steps 1 through 9. Before you begin, check Tables 14 and 15 to ensure switch settings are correct. Also check that your label matches your **Target** release.

- 1 Set the ENB/DIS faceplate switch to DIS.
- 2 Disconnect the cable to the card you are removing.
- 3 Unhook the locking devices on the card; pull it out of the card cage.
- 4 Remove the data cartridge anchor screw and unplug from the connectors on the component side of the card.
- 5 Plug the replacement data cartridge into the connectors on the component side of the card. Slightly tighten the anchor screw.
- 6 Reinsert the card and hook the locking devices.
- 7 Reconnect the cable to the card.
- 8 Set the card ENB/DIS faceplate switch to ENB.
- 9 If you are adding new software packages, refer to "Procedure 3: Convert from one X11 release to a later release" on page 47 and reinstall system software.

Note: Following software installation, a sysload is required to enable the new package(s).

Table 14
QPC584 MSI and NT9D34 EMSI card switch settings

Options	QPC584 = SW 3 NT9D34 = SW 2							
	1	2	3	4	5	6	7	8
5.25-in. floppy drives only	on	off	off	off	off	off	off	off
5.25-in. floppy drives and 5.25-in. hard drive	on	off	off	on	off	off*	off	off
3.5-in. floppy drives only	on	off	off	off	on	off	**	***
3.5-in. floppy drives and 3.5-in. hard drive	on	off	off	on	on	off	**	***
<p>Note: QPC584 vintage E or later is required for 3.5-in. drives. Vintage F4, K, or later is required for the three-disk configuration. Vintage L or later is required for X11 release 18.</p> <p>* When a QMM38 MSU is replaced, set switch 6 to ON before the faulty QMM38 is powered down, so the disk head will retract (shipping mode). After the replacement MSU is installed, set switch 6 to OFF.</p> <p>** For 4 MB (ED) disks set to ON. For 2 MB (HD) disks set to OFF.</p> <p>*** For STE, or 21E, set to ON <i>when</i> the NTND01 Integrated CPU/Memory (ICM) Card is installed. For all other systems, set to OFF.</p>								

Table 15
QPC742 Floppy Disk Interface (FDI)

Options	SW 1							
	1	2	3	4	5	6	7	8
5.25-in. floppy drives	on	off	off	off	off	off	off	off
3.5-in. floppy drives	on	off	off	off	on	off	*	**
<p>Note: Vintage D or later is required for 3.5-in. drives. Vintage F or later is required for X11 release 18.</p> <p>* For 4 MB (ED) disks set to ON. For 2 MB (HD) disks set to OFF.</p> <p>** For STE, or 21E, set to ON <i>when</i> the NTND01 Integrated CPU/Memory (ICM) Card is installed. For all other systems, set to OFF.</p>								

Procedure 9: Install a new Read Only Memory card

In the option 51C, 61C, 81 and 81C systems, ROM capability is provided by the CP card. In previous systems the Read Only Memory (ROM) card is attached to the component side of the CPU, CPU Function, or the CM card. This procedure applies only to the previous system cards. See the list below for the cards pertaining to your system.

Note: X11 release 21 is the last release that supports system options prior to options 51C, 61C, 81 and 81C.

- X11 release 17 and earlier
 - ST/21 QPC687 CPU card
 - NT/RT/XT QPC579 CPU Function (FN) card
51/61/71
- X11 release 18 and later
 - STE/21E NTND01 ICM card
 - NT/RT/XT QPC579 CPU Function (FN) card
51/61/71
- X11 release 21
 - STE/21E
 - NT/RT/XT QPC579 CPU Function (FN) card
51/61/71

Tables 16 and 17, on the following pages, list the ROM cards required for each system and for each X11 release.

Be sure to observe antistatic precautions.

Table 16

ROM requirements by system type and X11 release for ST, STE, NT, RT, and XT systems

X11 release	System type			
	ST	STE	NT/RT	XT
7	QPC717B	N/A	QPC602	QPC602
8	QPC717B	N/A	QPC602	QPC602
9	QPC717B	N/A	QPC602	QPC602
10	QPC717B	N/A	QPC602	QPC602
12	QPC717D	N/A	QPC602	QPC602
13	QPC717D	N/A	QPC602	QPC602
14	QPC717D or QPC937	N/A	QPC602	QPC602
15	QPC940	N/A	QPC939	QPC939
16	QPC940	N/A	QPC939	QPC939
17	QPC940	N/A	QPC939	QPC939
18	N/A	NTND31	NTND08	NTND08
19	N/A	NTND31	NTND08	NTND08
20	N/A	NTND31	NTND08	NTND08
21 see note 1	N/A	NTND31	NTND08	NTND08
<p>Note: ST systems are not supported with X11 release 18 and later. You must upgrade to the ST Enhanced (STE).</p> <p>Note 1: X11 release 21 is the highest supported software release for all of these system types.</p>				

Table 17
ROM requirements by system type and X11 release for 21, 21E, 51, 61, 71 and 81 systems

X11 rls	System type				
	21	21E	51 see note 1	61 see note 1	71 see note 1
7 to 14	N/A	N/A	N/A	N/A	N/A
15	QPC940	N/A	QPC939	QPC939	QPC939
16	QPC940	N/A	QPC939	QPC939	QPC939
17	QPC940	N/A	QPC939	QPC939	QPC939
18	see note 2	NTND31	NTND08	NTND08	NTND08
19	N/A	NTND31	NTND08	NTND08	NTND08
20	N/A	NTND31	NTND08	NTND08	NTND08
21	N/A	NTND31	NTNT08	NTND08	NTND08
<p>Note 1: System options, 51, 61, and 71 are available for X11 release 15 through release 21.</p> <p>Note 2: System option 21 is not supported with X11 release 18 and later. You must upgrade to 21 Enhanced (21E).</p>					

Replace ROM card on single CPU systems

CAUTION

Call processing will stop when you remove the ICM, CPU, or CPU FN card.

- 1 To replace the ROM card, you must remove the card.
 - If the SDI port is configured on the QPC687 card, software-disable it, and disconnect the cable to the SDI port.
- 2 Unhook the locking devices on the card. Pull it out of the card cage.
- 3 Gently unplug the ROM card from the connectors on the component side of the card.

CAUTION

When you remove the ROM card, do not touch other components on the card.

- 4 Plug the replacement ROM card into the connectors on the component side of the card.
 - For the NTND31 ROM, install the screw and washer at each corner.
- 5 Reinsert the card and hook the locking devices.
- 6 Set the ENB/DIS switch to ENB on the card.
- 7 A system reload is required. Press the RLD button.

Replace ROM card on dual CPU systems

CAUTION

This procedure must take place on the inactive CPU.

- 1** Disable the Function card by setting the associated QPC580 CPU Interface (IF) card ENB/DIS faceplate switch. Disconnect the cable between the Function and Interface cards in the inactive CPU.
- 2** Unhook the locking devices on the QPC579 Function card; pull it out of the card cage.
- 3** Gently unplug the ROM card from the connectors on the component side of the Function card.

CAUTION

When you remove the ROM card, do not touch other components on the Function card.

- 4** Plug the replacement ROM card into the connectors on the component side of the QPC579 Function card.
- 5** Reinsert the QPC579 Function card and hook the locking devices. Enable the Function card by setting the QPC580 Interface card ENB/DIS faceplate switch to ENB.
- 6** Connect the cable between the Function and Interface cards.

Procedure 10: Increasing memory

X11 release 24

To install X11 release 24, your system must be operating with the required CP card memory. If your system is not operating with the minimum memory requirement, the CP card(s) memory must be upgraded before installing release 24 software.

Release 24 supports NT9D19 (68040), NT5D10 (68060), and NT5D03 (68060E) Call Processor cards. The minimum memory requirement for each system option is listed in Table 18.

Table 18
Release 24 call processor memory requirements

System type	Minimum memory requirement	Call processor card
option 51C	48 MB	NT9D19 (68040), NT5D10 (68060), or NT5D03 (68060E)
option 61C	64 MB	NT9D19 (68040), NT5D10 (68060), or NT5D03 (68060E)
option 81 and 81C	80 MB	NT9D19 (68040)*, NT5D10 (68060) or NT5D03 (68060E)
Note: * The 96 MB NT9D19 (68040) CP card is not supported on option 81/81C systems running release 24. Option 81/81C systems with 96 MB NT9D19 CP cards must perform a memory upgrade or card replacement.		

A CP card memory upgrade consists of:

- installing 16 MB DRAM SIMMs on the existing CP card board
or
- installing a new, complete CP card

The supported memory upgrades for each Meridian 1 release 24 Call Processor card are listed in Tables 19, 20 and 21.

Table 19
68040 NT9D19 CP card memory upgrades

Existing Call Processor card	Supported memory upgrade	Upgrade method
48 MB NT9D19AA/AB	48 to 64 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
64 MB NT9D19CA/CB	64 to 80 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
80 MB NT9D19EA/EB	80 to 96 MB	Replace the NT9D19CA/CB CP card with a new NT9D19EA/EB CP card. See page 196 (IODU/C) or page 201 (IOP/CMDU).
96 MB NT9D19HA/HB	96 to 112 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.

Table 20
68060 NT5D10 CP card memory upgrades

Existing Call Processor card	Supported memory upgrade	Upgrade method
48 MB NT5D10AA	48 to 64 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
64 MB NT5D10CA	64 to 80 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
80 MB NT5D10DA	80 to 96 MB	Replace the NT5D10CA CP card with a new NT5D10DA CP card. See page 196 (IODU/C) or page 201 (IOP/CMDU).
96 MB NT5D10HA	96 to 112 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.

Table 21
68060E NT5D03 CP card memory upgrades

Existing Call Processor card	Supported memory upgrade	Upgrade method
48 MB NT5D03AA	48 to 64 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
64 MB NT5D03BA	64 to 80 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
80 MB NT5D03CA	80 to 96 MB	Replace the NT5D03BA CP card with a new NT5D03CA CP card. See page 196 (IODU/C) or page 201 (IOP/CMDU).
80 MB NT5D03DA	96 to 112 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
112 MB NT5D03EA	112 to 128 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.

X11 release 23

To install X11 release 23, your system must be operating with the required CP card memory. If your system is not operating with the minimum memory requirement, the CP card(s) memory must be upgraded before installing release 23 software.

Release 23 supports NT6D66 (68030), NT9D19 (68040), and NT5D10 (68060) Call Processor cards, and release 23.5x introduces the NT5D03 (68060E) Call Processor card. The minimum memory requirement for each system option is listed in Table 22.

Table 22
Release 23 call processor memory requirements

System type	Minimum memory requirement	Call processor card
option 51C and 61C	48 MB	NT6D66 (68030), NT9D19 (68040) or NT5D10 (68060)
option 81 and 81C	48 MB 64 MB	NT6D66 (68030) NT9D19 (68040), NT5D10 (68060) or NT5D03 (68060E)

A CP card memory upgrade consists of:

- installing 16 MB DRAM SIMMs on the existing CP card board
or
- installing a new, complete CP card

The supported memory upgrades for each release 23 Meridian 1 Call Processor card are listed in Tables 23 through 26.

Table 23
68030 NT6D66 CP card memory upgrades

Existing Call Processor card	Supported memory upgrade	Upgrade method
24 MB NT6D66AA/DA	24 MB to 48 MB	Remove two 4 MB DRAM, and install two 16 MB DRAM SIMM on each existing CP card. See page 211.
24 MB NT6D66AB/DB	24 MB to 48 MB	Remove one 8 MB DRAM, and install two 16 MB DRAM SIMM on each existing CP card. See page 211.
Note: The NT6D66DA 48 MB CP card is not available for new system sales or system upgrades.		
Note: Refer to "Increasing memory on NT6D66 CP cards" on page 210 for memory upgrade procedures.		

Table 24
68040 NT9D19 CP card memory upgrades

Existing Call Processor card	Supported memory upgrade	Upgrade method
48 MB NT9D19AA/AB	48 to 64 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
64 MB NT9D19CA/CB	64 to 80 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
80 MB NT9D19EA/EB	80 to 96 MB	Replace the NT9D19CA/CB CP card with a new NT9D19EA/EB CP card. See page 196 (IODU/C) or page 201 (IOP/CMDU).
96 MB NT9D19HA/HB	96 to 112 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.

Table 25
68060 NT5D10 CP card memory upgrades

Existing Call Processor card	Supported memory upgrade	Upgrade method
48 MB NT5D10AA	48 to 64 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
64 MB NT5D10CA	64 to 80 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
80 MB NT5D10DA	80 to 96 MB	Replace the NT5D10CA CP card with a new NT5D10DA CP card. See page 196 (IODU/C) or page 201 (IOP/CMDU).
96 MB NT5D10HA	96 to 112 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.

Table 26
68060 NT5D03 CP card memory upgrades

Existing Call Processor card	Supported memory upgrade	Upgrade method
48 MB NT5D03AA	48 to 64 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
64 MB NT5D03BA	64 to 80 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
80 MB NT5D03CA	80 to 96 MB	Replace the NT5D03BA CP card with a new NT5D03CA CP card. See page 196 (IODU/C) or page 201 (IOP/CMDU).
80 MB NT5D03DA	96 to 112 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.

X11 release 22

To install X11 release 22, your system must be operating with the required CP card memory.

For systems equipped with NT9D19 CP cards, the minimum memory requirement is:

- options 51C and 61C: 48 MB
- options 81 and 81C: 64 MB

Note: In market regions where the NT9D19 64 MB CP card is not available, options 81 and 81C require NT9D19 96 MB CP cards to run X11 release 22.

For systems equipped with NT6D66 CP cards, the minimum memory requirement is 48 MB for all system options.

If your system is not operating with the minimum memory requirement, the CP card(s) memory must be upgraded before installing release 22 software. For memory upgrade procedures, refer to “Increasing memory on NT9D19, NT5D10 CP and NT5D03 CP cards” on page 180 or “Increasing memory on NT6D66 CP cards” on page 210.

X11 release 21

To run release 21, options 81 and 81C must have 48 MB NT6D66DA/DB CP cards installed. If your system has 24 MB CP cards, they must be upgraded to 48 MB before installing release 21 software.

If you are upgrading 24MB CP cards by adding memory SIMMs, follow the procedure "Upgrading existing NT6D66AA/AB CP cards to 48 MB" on page 211. If you are replacing CP cards with new 48MB CP cards, follow the procedure "Replacing 24 MB CP cards with new 48 MB CP cards" on page 232.

X11 releases 18 through 20

X11 release 18 requires significant hardware changes for all systems. These hardware changes must be made during the conversion process. Refer to "Procedure 6: Performing a parallel reload" on page 101 for the conversion and upgrade details. The hardware requirements for NT, RT, XT, 61, and 71 for X11 release 18 and later are listed below.

- NTND08 ROM
- NTND09Bx 6-MB Memory Card
NTND09Cx 12-MB memory Card
- NTND10 CMA
- QPC584L Mass Storage Interface (MSI) or
NT9D34 Enhanced Mass Storage Interface (EMSI)
- NTND16 Multi Disk Unit (MDU)
- QPC742F Floppy Disk Interface (FDI)
- NTND15 Floppy Disk Unit (FDU)

Note 1: The FDI and FDU, or the MSI/EMSI and MDU are optional for RT systems. NT, XT, 51, 61, and 71 systems require the MSI and MDU.

Note 2: If you are replacing an NTND09Bx 6-MB card with the NTND09Cx 12-MB memory card, use "Procedure 6: Performing a parallel reload" on page 101 to enter parallel mode *before* changing the card. You **must** sysload for the changes to take affect. Refer to *Meridian 1 hardware replacement* (553-3001-520) for complete instructions.

Note 3: Do not mix NTND09 memory cards with QPC583 memory cards.

Note 4: NTND10 CMA cards are backward compatible with QPC583 memory cards and QPC581 CMA cards. Set pins 2 and 3 on jumper J3 to support backward compatibility.

The ST and 21 must be upgraded to ST Enhanced (STE) or 21 Enhanced (21E) machines to support X11 release 18. Refer to *Upgrade system installation* (553-3001-250) for the STE and 21E upgrade procedures. The following hardware is required.

- NTND01 Integrated CPU and Memory (ICM)
- NTND02 Miscellaneous SDI Peripheral Signaling (MSPS)
- NTND31 ROM
- NTND15 Floppy Disk Unit (FDU) or
NT9D33 Small System Multi Disk Unit (SMDU)
- QPC742F Floppy Disk Interface (FDI) or
NT9D34 Enhanced Mass Storage Interface (EMSI) card

X11 release 17 and earlier

CAUTION

To avoid damaging equipment from electrostatic discharge, wear a properly connected anti-static wrist strap when working on Meridian 1 equipment.

With X11 release 17 and earlier, if you find that you need to increase the memory in your system, perform the following procedure.

With X11 release 12 through 14, an ST memory upgrade is supported. The only other systems supporting memory upgrades with X11 release 17 or earlier are XT and 71 systems.

CAUTION

Perform this procedure from your **Source** media, prior to conversion.

- 1 Load LD 17 to perform a change.

LD 17

REQ	CHG	Change system data.
CEQU	YES	Change Common Equipment parameters.
MTYP	xxx	Enter the new memory type.

See *X11 input/output guide* (553-3001-400) for a complete explanation of these prompts and allowed responses.

- 2 Perform a data dump to your **Source** media.

Install required memory boards and invoke system reload. Additional system memory is now provisioned and active.

- 3 You are now ready to perform your conversion, or parallel reload.

Increasing memory on NT9D19, NT5D10 CP and NT5D03 CP cards

Use the following procedures to increase the on-board CP card memory on the NT9D19, NT5D10 or NT5D03 CP cards.

Memory upgrades consist of installing memory SIMMs on your existing NT9D19 or NT5D10 or NT5D03 CP card, or installing new, complete CP card(s) depending on memory requirements. Refer to Table 27 on page 181 for a listing of the supported CP card memory upgrades.

Several system upgrades to option 51C, 61C, 81, and 81C include procedures to upgrade CP card memory. If you are upgrading to one of these systems, do not use the procedures in this document; instead, locate the upgrade procedure that applies to your system (see *Upgrade system installation to X11 release 24* (553-3001-258) and use the memory upgrade procedure contained therein.

CAUTION

Northern Telecom recommends that only properly trained distributor personnel perform this memory SIMM upgrade. Upgrade memory on NT9D19, NT5D10, or NT5D03 CP cards involves some risk of damage to SIMMs and CP cards; personnel performing this upgrade do so at their own risk. Personnel should have spare CP cards on hand or risk installation delay or system down time. Northern Telecom assumes no responsibility for any damage incurred, installation delays due to board damage, or loss due to damage or system down time.

Table 27
Supported CP card memory upgrades

Existing Call Processor card	Supported memory upgrade	Upgrade method
48 MB NT9D19AA/AB	48 to 64 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
64 MB NT9D19CA/CB	64 to 80 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
80 MB NT9D19EA/EB	80 to 96 MB	Replace the NT9D19CA/CB CP card with a new NT9D19EA/EB CP card. See page 196 (IODU/C) or page 201 (IOP/CMDU).
96 MB NT9D19HA/HB	96 to 112 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
48 MB NT5D10AA	48 to 64 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
64 MB NT5D10CA	64 to 80 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
80 MB NT5D10DA	80 to 96 MB	Replace the NT5D10CA CP card with a new NT5D10DA CP card. See page 196 (IODU/C) or page 201 (IOP/CMDU).
96 MB NT5D10HA	96 to 112 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
48 MB NT5D03AA	48 to 64 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
64 MB NT5D03BA	64 to 80 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
80 MB NT5D03CA	80 to 96 MB	Replace the NT5D03BA CP card with a new NT5D03CA CP card. See page 196 (IODU/C) or page 201 (IOP/CMDU).

Table 27
Supported CP card memory upgrades (Continued)

Existing Call Processor card	Supported memory upgrade	Upgrade method
80 MB NT5D03DA	96 to 112 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
112 MB NT5D03EA	112 to 128 MB	Install one 16 MB DRAM SIMM on each existing CP card. See page 182.
Note: NT9D19 CP cards are supported with X11 release 22 and later. NT5D10 CP cards are supported with X11 release 23. NT5D03 CP cards are supported from X11 release 23.5.		

Installing memory SIMMs on NT9D19, NT5D10 or NT5D03 CP cards

These procedures describe how to increase the CP card memory by installing memory SIMMS on the following NT9D19, NT5D10 and NT5D03 CP card(s):

- NT9D19 48 MB to 64 MB
- NT9D19 64 MB to 80 MB
- NT5D10 48 MB to 64 MB
- NT5D10 64 MB to 80 MB
- NT5D03 48 MB to 64 MB
- NT5D03 64 MB to 80 MB

Note: This procedure **cannot** be used to upgrade an NT9D19 64 MB CP card to 96 MB, an NT5D10 80 MB CP card to 112 MB, or an NT5D03 80 MB CP card to 128 MB. Those memory upgrades consist of installing new, complete CP cards (see “Installing new NT9D19, NT5D10 or NT5D03 CP cards” on page 201).

Memory SIMM precautions

Upgrading a CP card consists of the installation of new SIMM(s). If you are installing memory SIMMs on the CP cards, view the video tape "CP Card SIMMs Installation Video" included in the upgrade package before attempting this upgrade.

CAUTION

Memory SIMMs are static-sensitive semiconductor devices which require that you take some electrostatic discharge (ESD) precautions. An ESD-safe work station is recommended on which the CP card can be placed. The minimum requirement is a properly-grounded ESD ground strap worn by the upgrade personnel at all times.

- 1 Find and test an appropriate ground point for the antistatic mat, as described in the video tape provided.
- 2 Attach the antistatic mat ground wire to the ground point.
- 3 Place ESD wrist strap on your wrist and connect the wrist strap ground wire to the antistatic mat.

Upgrade preparation

Before proceeding with the upgrade procedure, make a backup copy of the customer database using the data dump routine:

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 3 When "EDD000" appears on the terminal, enter
EDD to begin the data dump
- 4 When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 5 Check the total memory allocation before the upgrade.

LD 10 to load the program

When the header for overlay 10 is displayed, note the value associated with Total Memory. Compare the Total Memory before and after the upgrade. Total Memory should be greater after the upgrade.

Exit the program:

**** to exit the program

Splitting the cores

Note: This section is not applicable for option 51C systems. Skip to “Upgrading the CP card memory” on page 186 to continue with the upgrade.

- 1 Verify that the disk drives are synchronized:

LD 137 to load the program
STAT to get the status of the disk drives

If the disks are synchronized, proceed with step 2. If they are not synchronized, execute the SYNC command:

SYNC to synchronize the drives
******** to exit the program

- 2 Verify that CPU 0 is the active CPU:

LD 135 to load the program
STAT CPU to check CPU status

If CPU 0 is active, proceed with step 3. If CPU 0 is not the active CPU, swap CPUs and verify again:

SCPU to swap CPUs
STAT CPU to check CPU status

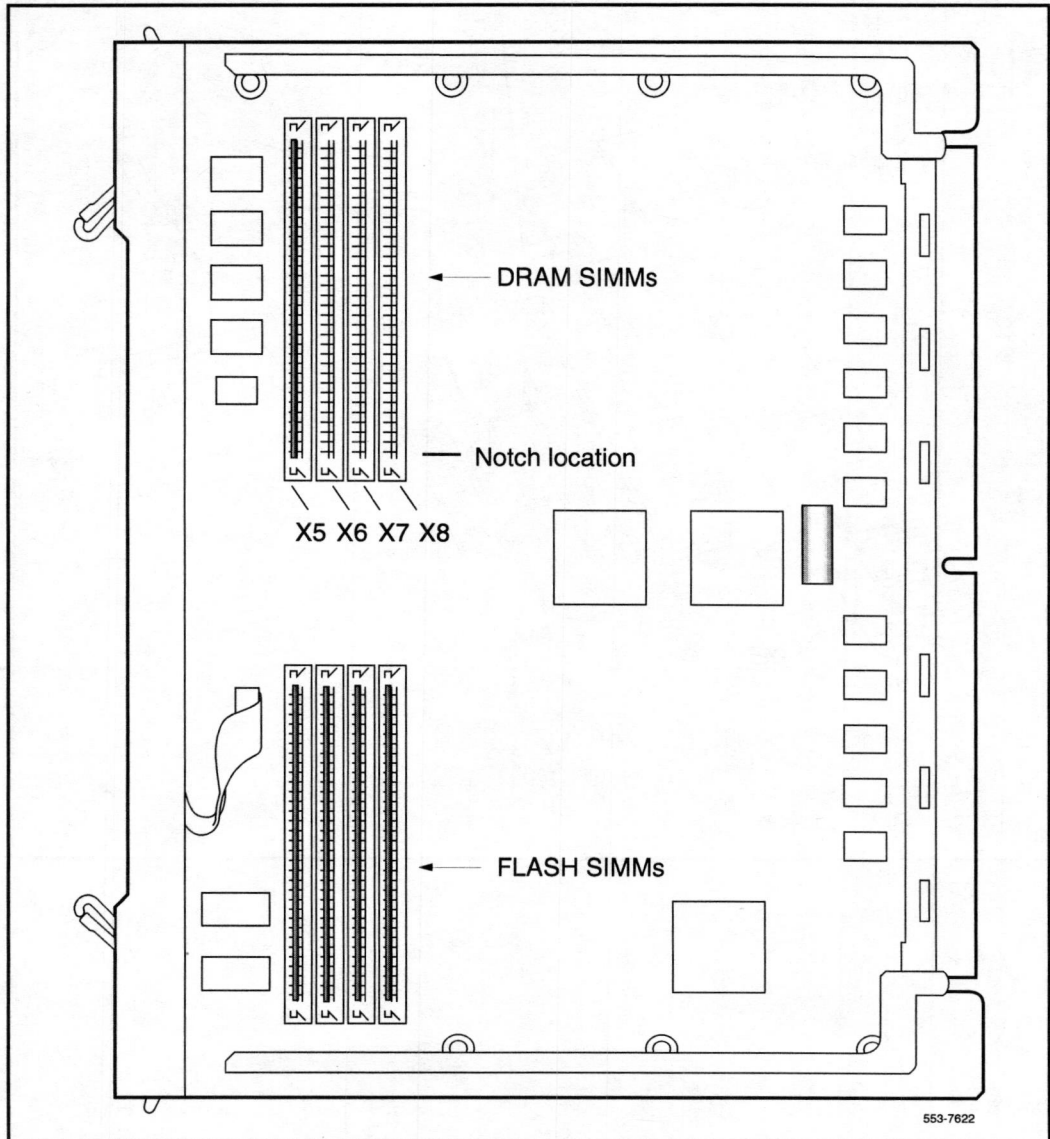
- 3 Set the MAINT/NORM switch on the NT9D19, NT5D10 or NT5D03 CP card in Core 0 to MAINT.
- 4 Set the ENB/DIS switch on all CNI cards in Core 1 to DIS.
- 5 Perform the following three steps in uninterrupted sequence:
 - press and hold the MAN RST button on the CP card in Core 1
 - set the MAINT/NORM switch on the CP card in Core 1 to MAINT
 - release the MAN RST button

The system is now operating in split mode, with call processing on Core 0.

Upgrading the CP card memory

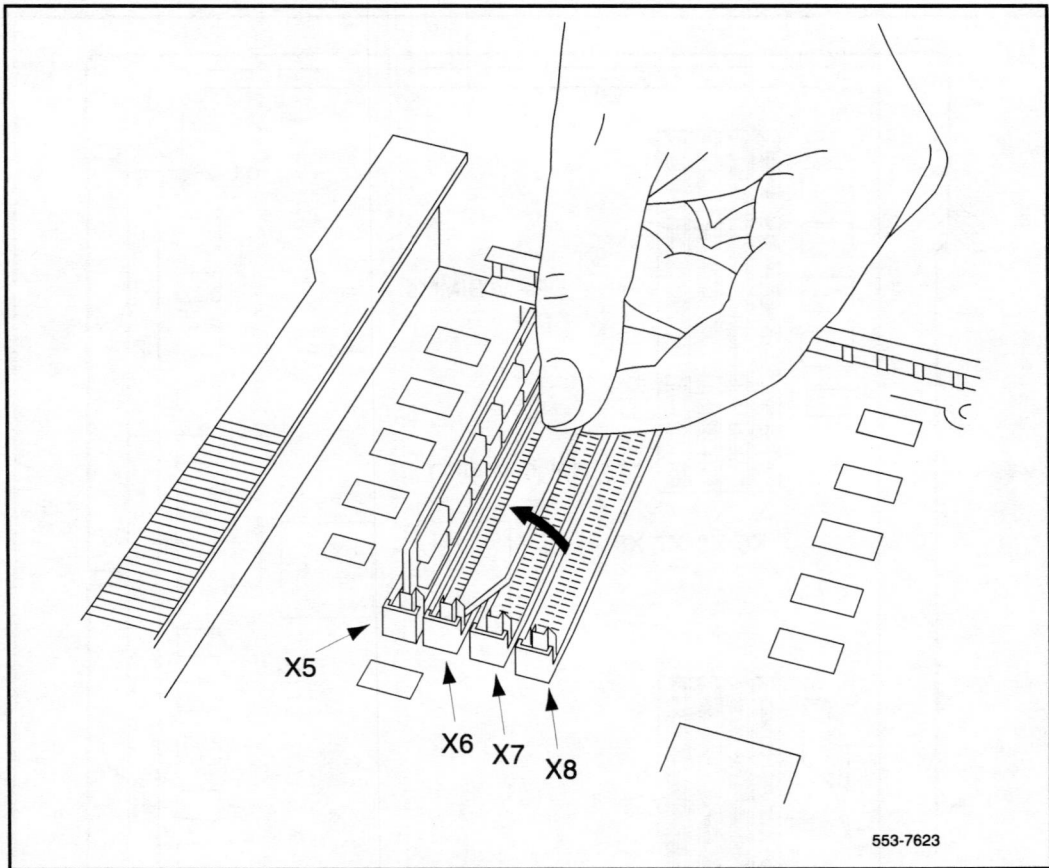
- 1** Connect a terminal to the CPSI port in Core 1 to J25 of the I/O panel at the back of the core. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.
 - 7 data bits
 - 1 stop bit
 - Space parity
 - Full duplex
 - XON protocol
- 2** Press the MAN RST button on the NT9D19, NT5D10 or NT5D03 CP card in Core 1, immediately disengage the lock latches and remove the card.
- 3** Place the CP card SIMM-side up on the antistatic mat.
- 4** Locate the DRAM (Dynamic Random Access Memory) SIMM (Single Inline Memory Module) connectors (see Figure 1 on page 187).

Figure 1
SIMM Identification on NT9D19 CP, NT5D10 CP or NT5D03 CP card



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Figure 2
SIMM Installation on NT9D19, NT5D10 or NT5D03 CP card



- 5 Install a new 16 MB SIMM in the SIMM connector designated X6, for the 48 MB to 64 MB upgrade; install a new 16 MB SIMM in the SIMM designated X7 for the 64 MB to 80 MB upgrade:
 - Orient the new SIMM so that the notch at one end of the SIMM aligns with the key at one end of the SIMM socket (see Figure 2 on page 188).
 - Hold the SIMM approximately at a 50- to 70-degree angle and gently insert the SIMM into the socket (see Figure 2 on page 188).
 - Using your thumbs and index fingers only (at the upper corners of the SIMM), carefully lean the SIMM toward the others until it is upright and the latch at each end of the SIMM snaps into place. If necessary, use the non-conductive screw driver to assist you in opening each latch while you move the SIMM into the upright position.

CAUTION

Do not force the SIMM into the socket. Any damage caused to the socket will require replacement of the entire NT9D19, NT5D10 or NT5D03 CP CP card.

- 6 Verify that the MAINT/NORM switch on the newly upgraded CP card is set to MAINT.
- 7 Insert the CP card in Core 1 in the same slot and secure the lock latches. The system will automatically perform a sysload during which several messages will appear on the system terminal.
- 8 Verify that the "DONE" message appears on the system terminal.
Note: The SYSTEM INI message may take 70 seconds or more to appear.
- 9 After the system initializes, log into the system.
- 10 Set the date and time:

LD 2	to load the overlay
STAD	DD MM YY HR MN SC

- 11 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 12 When "EDD000" appears on the terminal, enter
EDD to begin the data dump
- 13 When "DATABASE BACKUP COMPLETE" and "DATADUMP COMPLETE" appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 14 For options 61C, 81, and 81C, continue with step 17. For option 51C systems, skip to "Completing the upgrade for option 51C" on page 194.
- 15 Set the ENB/DIS switch on the IOP or IOP/CMDU card to DIS in Core 0.
- 16 Set the ENB/DIS switches on all CNI cards in Core 0 to DIS.
- 17 Set the ENB/DIS switches on all CNI cards in Core 1 to ENB.

CAUTION

Disabling CNI cards in Core 0 will momentarily interrupt call processing. Calls established or in process will be dropped. Call processing will resume after the "SYSTEM INI" messages appear on the system terminal (approximately 1 minute).

- 18 Press the MAN INT button on the CP Card in Core 1.

After the system initialization has finished (INI messages are no longer displayed on the system terminal), check for dial tone on a telephone set. If dial tone is present, upgrade Core 0.

Upgrading the CP card memory in Core 0

- 1** Connect a terminal to the CPSI port in Core 1 to J25 of the I/O panel at the back of the core. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.
 - 7 data bits
 - 1 stop bit
 - Space parity
 - Full duplex
 - XON protocol
- 2** Press the MAN RST button on the NT9D19, NT5D10 or NT5D03 CP card in Core 0 and then immediately disengage the lock latches and remove the card.
- 3** Place the CP card SIMM-side up on the antistatic mat.
- 4** Locate the DRAM SIMM connectors (see Figure 1 on page 187).

- 5 Install a new 16 MB SIMM in the SIMM connector designated X6, for the 48 MB to 64 MB upgrade; install a new 16 MB SIMM in the SIMM designated X7 for the 64 MB to 80 MB upgrade:
 - Orient the new SIMM so that the notch at one end of the SIMM aligns with the key at one end of the SIMM socket (see Figure 2 on page 188).
 - Hold the SIMM approximately at a 50- to 70-degree angle and gently insert the SIMM into the socket (see on page 188).
 - Using your thumbs and index fingers only (at the upper corners of the SIMM), carefully lean the SIMM toward the others until it is upright and the latch at each end of the SIMM snaps into place. If necessary, use the non-conductive screw driver to assist you in opening each latch while you move the SIMM into the upright position.

CAUTION

Do not force the SIMM into the socket. Any damage caused to the socket will require replacement of the NT9D19, NT5D10 or NT5D03 CP card.

- Using your thumbs and index fingers only (at the upper corners of the SIMM), carefully lean the SIMM toward the others until it is upright and the latch at each end of the SIMM snaps into place. If necessary, use the non-conductive screw driver to assist you in opening each latch while you move the SIMM into the upright position.
- 6 Insert the CP card in the same slot in Core 0 and secure the lock latches. The system will automatically perform a sysload during which several messages will appear on the system terminal.

7 Perform the following three steps in rapid succession:

- Press and hold the MAN RST button
- Set the MAINT/NORM switch on the CP card in Core 0 to NORM
- Release the MAN RST button

An “HW1534” message from the CPSI (Core 1) or SDI port indicates the start of memory synchronization. Within 10 minutes, an “HW1533” message from the CPSI (Core 1) or SDI port indicates that the contents of Core 0 memory is copied to Core 1 memory. Wait until the memory synchronization is complete before continuing.

8 Set the ENB/DIS switches on all CNI cards in Core 0 to ENB.

9 Set the MAINT/NORM switch on the CP card in Core 1 to NORM.

Completing the upgrade for options 61C, 81, and 81C

1 Check total memory allocation after the upgrade.

LD 10 to load the program

When the header for overlay 10 is displayed, note the value associated with Total Memory. Compare Total Memory before and after the upgrade. Total Memory should be greater after the upgrade.

Exit the program:

******** to exit the program

2 Verify CPU redundancy and CNI function:

LD 135 to load the overlay
STAT CPU to check the status of CPU 0
STAT CNI to verify function of CNIs in Core 0
TEST CPU to test CPU 0
SCPU switch to CPU 0
STAT CPU to check the status of CPU 1
STAT CNI to verify function of CNIs in Core 1
TEST CPU to test CPU 1
SCPU switch to CPU 1
******** to exit the program

- 3 Synchronize the disk drives:
 LD 137 to load the overlay
 SYNC to synchronize the disk drives
 ******** to exit the program
- 4 Apply the new labels to the upgraded card, making sure to use the correct label for the card you are upgrading.
- 5 Apply the new bar code label next to the existing bar code label at the top of the faceplate; do not cover the existing label with the new one. Discard all unused labels.

The CP card memory upgrade for options 61C, 81, or 81C is complete.

Completing the upgrade for option 51C

- 1 Check total memory allocation after the upgrade.
 LD 10 to load the program

When the header for overlay 10 is displayed, note the value associated with Total Memory. Compare Total Memory before and after the upgrade. Total Memory should be greater after the upgrade.

Exit the program:

******** to exit the program

- 2 Verify CPU and CNI functionality:
 LD 135 to load the overlay
 STAT CPU to check the status of CPU 0
 STAT CNI to verify function of CNIs in Core 0
 ******** to exit the program
- 3 Apply the new labels to the upgraded card, making sure to use the correct label for the card you are upgrading.
- 4 Apply the new bar code label next to the existing bar code label at the top of the faceplate; do not cover the existing label with the new one. Discard all unused labels.

The CP card memory upgrade for option 51C is complete.

Installing new NT9D19, NT5D10 or NT5D03 CP cards on systems with IODU/C

Note: Use this procedure if your system is equipped with the IODU/C card (see page 196 if your system is equipped with IOP/CMDU or separate IOP and CMDU cards).

The following procedures describe how to increase the CP card memory by installing a new CP card with higher memory capacity. It can be used to replace and upgrade the following CP cards:

- **80 MB** NT9D19EA card with a new **96 MB** NT9D19CA card
- **80 MB** NT5D10CA card with a new **112 MB** NT5D10DA card
- **80 MB** NT5D03DA card with a new **128 MB** NT5D03EA card

Before starting the procedure, make a backup copy of the customer database using the data dump routine:

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 3 When "EDD000" appears on the terminal, enter
EDD to begin the data dump
- 4 When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 5 Check total memory allocation before the upgrade.

LD 10 to load the program

When the header for overlay 10 is displayed, note the value associated with Total Memory. After the upgrade, compare Total Memory before and after the upgrade. Total Memory should be greater after the upgrade.

Exit the program:

******** to exit the program

Split the cores

- 1 To access the Core during the replacement procedure, connect a terminal to the system. The CP card you are replacing must be in the inactive Core. Check the status of the NT5D10 or NT5D03 Call Processor card:

LD 135

STAT CPU determine which CP card is active

If necessary, switch Cores:

SCPU switch Cores

******** exit LD 135

- 2 Set the NORM/MAINT switch on the NT5D10 or NT5D03 Call Processor card to MAINT on the *active* Core.
- 3 Set the ENB/DIS switch on all CNI cards on the *inactive* Core to DIS.
- 4 Perform the following three steps on the *inactive* Core in an uninterrupted sequence:
 - Press and hold down the MAN RST button on the CP card on the inactive Core.
 - Set the NORM/MAINT switch to MAINT.
 - Release the MAN RST button.

The system is now in split mode where each Core is functioning independently and the automatic switchover has been disabled.

Installing equipment

- 1 Set the NORM/MAINT switch to MAINT on the replacement card.
- 2 Insert the CP Install Program diskette which corresponds with the NT5D10 or NT5D03 Call Processor (68060 or 68060E).
- 3 Remove the current CP card and put it in a static bag and box.
- 4 Insert the CP replacement card into its vacated slot and hook the locking devices.
- 5 Press the MAN RST button on the replacement CP card.
- 6 When the NT Logo Screen appears on the terminal, press <CR>.
- 7 Press <CR> to continue.
- 8 Log into the system and enter the time and date, when prompted.
- 9 Initiate the database installation by selecting the following command from the menu:
 - <u> to Install menu
- 10 Remove the CP Install Program diskette and insert the Keycode diskette, when prompted.
 - <a> to continue with keycode validation
 - <y> to confirm that the keycode matches the CD-ROM release
- 11 When the Install Menu appears, select the following options in sequence:
 - <g> to reinstall CP software
 - <y> to start installation
 - <a> to continue ROM upgrade
 - <cr> to return to the Install Menu
- 12 When the Install Menu appears, select the following options in sequence
 - <e> to install CP-BOOTROM
 - <y> to start installation
 - <a> to continue with the upgrade
- 13 A Status Summary is displayed indicating what was installed. Press <CR> to return to the Install Menu.

14 Remove the diskette from the IODU/C.

15 Select the following options to quit the Install Tool:

- | | |
|------------------|-----------------------|
| <q> | to quit |
| <y> | to confirm quit |
| <a> | to reboot the system. |

Note: The system will reboot. Wait for the “INI” and “DONE” messages to display before continuing. It will take at least 70 seconds between the “DONE” and “INI” messages.

After the system initialization has finished (INI messages are no longer displayed on the system terminal), check for dial tone on a telephone set.

16 Following a successful dial tone test, perform the following basic sanity tests:

- Make sure calls can be placed
- Check for error messages, line noise, chatter, or other problems. Track sources and resolve problems as necessary.

To place the system back in the redundant (normal) mode with automatic switchover capability. Perform the following five steps in uninterrupted sequence on the *inactive* Core (the Core with the replaced CP card):

17 Press and hold down the MAN RST button on the CP card of the *inactive* Core.

18 While holding down the MAN RST button, set the NORM/MAINT switch on the same CP card to NORM.

19 Enable all CNI switches in the inactive Core.

20 Release the MAN RST button.

21 Set the CP card in the active Core to NORM.

After several minutes, an “HWI533” message is issued by the *active* Core indicating that the *inactive* Core memory is being synchronized with the *active* Core memory.

- 22 Log into the system through the terminal, then check the status of the replacement CP card from the active side:

LD 135	load LD 135
STAT CPU	obtain the CPU status

- 23 If there are CCED messages generated by the STAT CPU command on the replacement CP card, set the NORM/MAINT switch to MAINT, press the reload (MAN RST) button and set the NORM/MAINT switch back to NORM. (It may take 2 to 4 minutes for memory synchronization to take place.)

After the HWI0533 message is displayed, test the replacement CP card from the active CPU:

TEST CPU the test causes a cold start on the inactive CPU

If the test results in:

CCED014 "Test failed because unable to enter SPLIT mode"

On the active CP card set the NORM/MAINT switch to NORM, and from the active side enter:

TEST CPU to test the CP card

- 24 Set the NORM/MAINT switch to NORM on the active CP card (if not already set).

- 25 Check the status of the CPUs:

STAT CPU

- 26 Test the CPU.

TEST CPU

- 27 Check the status of the CNIs:

STAT CNI

- 28 Switch Cores and exit the program:

SCPU	
****	exit LD 135

Installing new NT9D19, NT5D10 or NT5D03 CP cards

Note: Use this procedure for systems that are equipped with IOP/CMDU or separate IOP and CMDU cards.

The following procedures describe how to increase the CP card memory by installing a new CP card with higher memory capacity. It can be used to replace and upgrade the following CP cards:

- **80 MB NT9D19EA** card with a new **96 MB NT9D19CA** card
- **80 MB NT5D10CA** card with a new **112 MB NT5D10DA** card
- **80 MB NT5D03DA** card with a new **128 MB NT5D03EA** card

Upgrade preparation

Before proceeding with the upgrade procedure, make a backup copy of the customer database using the data dump routine:

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program
- 3 When "EDD000" appears on the terminal, enter **EDD** to begin the data dump
- 4 When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, enter ******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 5 Check total memory allocation before the upgrade.

LD 10 to load the program

When the header for overlay 10 is displayed, note the value associated with Total Memory. After the upgrade, compare Total Memory before and after the upgrade. Total Memory should be greater after the upgrade.

Exit the program:

******** to exit the program

Splitting the Cores

Note: This section is not applicable to option 51C systems. Skip to “Replacing the CP card and upgrading the software” on page 204 to continue with the memory upgrade.

To install a new CP card in Core 1, first split the CPUs:

- 1 Verify that the disk drives are synchronized:

LD 137	to load the program
STAT	to get the status of the disk drives

If the disks are synchronized, proceed with step 2. If they are not synchronized, execute the SYNC command:

SYNC	to synchronize the drives
****	to exit the program

- 2 Verify that CPU 0 is the active CPU:

LD 135	to load the program
STAT CPU	to check CPU status

If CPU 0 is active, proceed with step 3. If CPU 0 is not the active CPU, swap CPUs and verify again:

SCPU	to swap CPUs
STAT CPU	to check CPU status

- 3 Set the MAINT/NORM switch on the NT9D19 or NT5D10 or NT5D03 CP card in Core 0 to MAINT.
- 4 Set the ENB/DIS switch on all CNI cards in Core 1 to DIS.
- 5 Perform the following three steps in uninterrupted sequence:
 - press and hold the MAN RST button on the CP card in Core 1
 - set the MAINT/NORM switch on the CP card in Core 1 to MAINT
 - release the MAN RST button

Replacing the CP card and upgrading the software

- 1 Connect a terminal to the CPSI port to J25 of the I/O panel at the back of the core. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.
 - 7 data bits
 - 1 stop bit
 - Space parity
 - Full duplex
 - XON protocol
- 2 Press the MAN RST button on the NT9D19 or NT5D10 or NT5D03 CP card in Core 1 and then immediately disengage the lock latches and remove the card.
- 3 Verify that the MAINT/NORM switch on the new NT9D19 or NT5D10 or NT5D03 CP card is set to MAINT.
- 4 Set the ENB/DIS switch on the IOP/CMDU card in Core 1 to DIS and remove the card. Replace the current QMM42 cartridge with the new QMM42 cartridge. Reinstall and enable the card.
- 5 Insert disk A1 from the target software upgrade package into the CMDU or IOP/CMDU.
- 6 Insert a new NT9D19/NT5D10/NT5D03CP card in the same slot and secure the lock latches. The system will automatically load the software installation program.
- 7 From the main menu, select the following:
 - <g> to update the flash ROMs from the hard disk
 - <y> to confirm installation
- 8 Press <CR> to return to the main menu.
- 9 Upon successful installation of software on the flash ROMs, select the following to update the CP-BOOT ROM:
 - <e> to install CP-BOOT ROM
 - <y> to confirm installation

- 10 Press <CR> to return to the main menu.
- 11 Select the following to quit and reload the system:

<q>	to quit
<y>	to confirm quit
<a>	to reboot the system

The system will automatically perform a sysload.

- 12 Verify that the “DONE” message appears on the system terminal.
Note: The SYSTEM INI message may take 70 seconds or more to appear.
- 13 After the system initializes, log into the system.
- 14 Set date and time:

LD 2	to load the overlay
STAD	DD MM YY HR MN SC

- 15 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 16 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 17 When “DATABASE BACKUP COMPLETE” and “DATADUMP COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 18 For options 61C, 81, and 81C, continue with step 19. For option 51C systems, skip to “Completing the upgrade for option 51C” on page 194.
- 19 Set the ENB/DIS switch on the IOP or IOP/CMDU card to DIS in Core 0.

- 20 Set the ENB/DIS switches on all CNI cards in Core 0 to DIS.
- 21 Set the ENB/DIS switches on all CNI cards in Core 1 to ENB.

CAUTION

Disabling CNI cards in Core 0 will momentarily interrupt call processing. Calls established or in process will be dropped. Call processing will resume after the "SYSTEM INI" messages appear on the system terminal (approximately 1 minute).

- 22 Press the MAN INT button on the CP Card in Core 1.

After the system initialization has finished (INI messages are no longer displayed on the system terminal), check for dial tone on a telephone set. If dial tone is present, proceed with the next step.

Upgrading Core 0

Once the CP card in Core 1 is upgraded, you may proceed to upgrade the CP card in Core 0:

- 1 Connect a terminal to the CPSI port in Core 1 to J25 of the I/O panel at the back of the core. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.
 - 7 data bits
 - 1 stop bit
 - Space parity
 - Full duplex
 - XON protocol
- 2 Verify that the MAINT/NORM switch on the CP card in Core 0 is set to MAINT.
- 3 Verify that the ENB/DIS switches on all CNI cards in Core 0 are set to DIS.
- 4 Verify that the IOP or IOP/CMDU card in Core 0 is set to DIS and remove the card. Replace the current QMM42 cartridge with the QMM42 cartridge for release 24 software. Reinstall and enable the card.

Replacing the CP card and upgrading the software in Core 0

- 1** Press the MAN RST button on the NT9D19, NT5D10 or NT5D03 CP card in Core 0 and then immediately disengage the lock latches and remove the card.
- 2** Insert disk A1 of the software upgrade package into CMDU or IOP/CMDU 0.
- 3** Verify that the MAINT/NORM switch on the new NT9D19, NT5D10 or NT5D03 CP card is set to MAINT.
- 4** Insert a new NT9D19, NT5D10 or NT5D03 CP card in the same slot in Core 0 and secure the lock latches. The system will automatically load the software installation program.
- 5** From the main menu, select the following:

<g>	to update the flash ROMs from the hard disk
<y>	to confirm installation
- 6** Press <CR> to return to the main menu.
- 7** Upon successful installation of software on the flash ROMs, select the following to update the CP-BOOT ROM:

<e>	to install CP-BOOT ROM
<y>	to confirm installation
- 8** Press <CR> to return to the main menu.
- 9** Remove the disk from the CMDU or IOP/CMDU.
- 10** Select the following to quit and reload the system:

<q>	to quit
<y>	to confirm quit
<a>	to reboot the system

The system will automatically perform a sysload.

11 Perform the following three steps in rapid succession:

- Press and hold the MAN RST button
- Set the MAINT/NORM switch on the CP card in Core 0 to NORM
- Release the MAN RST button

A "HW1534" message from the CPSI (Core 1) or SDI port indicates the start of memory synchronization. Within 10 minutes, an "HW1533" message from the CPSI or SDI port indicates that the contents of Core 0 memory is copied to Core 1 memory. Wait until the memory synchronization is complete before continuing.

12 Set the ENB/DIS switches on all CNI cards in Core 0 to ENB.

13 Set the MAINT/NORM switch on the CP card in Core 1 to NORM.

Completing the upgrade for options 61C, 81, and 81C

1 Check total memory allocation after the upgrade.

LD 10 to load the program

When the header for overlay 10 is displayed, note the value associated with Total Memory. Compare Total Memory before and after the upgrade. Total Memory should be greater after the upgrade.

Exit the program:

******** to exit the program

To complete the field upgrade of the NT9D19 or NT5D10 or NT5D03 CP card, synchronize the disk drives, and verify CPU and CNI status:

2 Verify CPU redundancy and CNI function:

LD 135 to load the overlay
STAT CPU to check the status of CPU 0
STAT CNI to verify function of CNIs in Core 0
TEST CPU to test CPU 0
SCPU switch to CPU 0
STAT CPU to check the status of CPU 1
STAT CNI to verify function of CNIs in Core 1
TEST CPU to test CPU 1

SCPU switch to CPU 1
******** to exit the program

3 Synchronize the disk drives:

LD 137 to load the overlay
SYNC to synchronize the disk drives
******** to exit the program

The field upgrade to the new memory configuration is complete.

Completing the upgrade for option 51C

To complete the NT9D19, NT5D10 or NT5D03 CP card upgrade, verify CPU and CNI status:

1 Check total memory allocation after the upgrade.

LD 10 to load the program

When the header for overlay 10 is displayed, note the value associated with Total Memory. Compare Total Memory before and after the upgrade. Total Memory should be greater after the upgrade.

Exit the program:

******** to exit the program

2 Verify CPU redundancy and CNI function:

LD 135 to load the overlay
STAT CPU to check the status of CPU 0
STAT CNI to verify function of CNIs in Core 0
******** to exit the program

The upgrade to the new memory configuration is complete.

Increasing memory on NT6D66 CP cards

This memory upgrade is not compatible with release 19 or earlier software.

Use the following procedures to upgrade the CP card memory on NT6D66AA/AB CP cards in options 51C and 61C. Several system upgrades to option 51C and 61C include procedures to upgrade CP card memory. If you are upgrading to one of these systems, do not use the procedures in this document; instead, locate the upgrade procedure that applies to your system (see *Upgrade system installation to X11 release 24* (553-3001-258) and use the memory upgrade procedure contained therein. Options 51C and 61C running release 20 or later software may also have CP card memory upgraded, but it is not required.

Memory upgrades consist of replacing memory SIMMs on each card, or installing new, complete 48 MB CP cards. These procedures also include steps for performing an upissue from release 19 to release 22 on option 51C, 61C, and 81C systems.

This memory upgrade procedures also include steps for performing the Automatic Inline Conversion procedure supported by X11 release 22 from X11 release 21. If your system is running on a software release earlier than release 21, it must be converted to release 21 before continuing with the procedure.

Note: This procedure is for upgrading memory on NT6D66AA/AB CP cards only.

CAUTION

Northern Telecom recommends that only properly trained distributor personnel perform this memory SIMM upgrade. Upgrade memory on NT6D66AA/AB CP cards involves some risk of damage to SIMMs and CP cards; personnel performing this upgrade to so at their own risk. Personnel should have spare CP cards on hand or risk installation delay or system down time. Northern Telecom assumes no responsibility for any damage incurred, installation delays due to board damage, or loss due to damage or system down time.

If your system is an option 51C or 61C that is already running on X11 release 21 software, it is not necessary to reinstall release 21 software. However, you must still use “Procedure 11: Software Installation Tool” to upgrade CP and IOP ROMs, where indicated in this procedure.

Upgrading existing NT6D66AA/AB CP cards to 48 MB

These procedures include instructions describing how to increase CP card memory by installing additional memory SIMMs on each of the CP cards.

Upgrading the NT6D66AA/AB CP card consists of

- splitting the CPUs
- upgrading the system software in Core 1
- upgrading the ROMs in Core 1
- installing memory SIMMs on CP card in Core 1
- swapping CPUs
- install memory SIMMs on CP card in Core 0
- upgrading the system software in Core 0
- upgrading the ROMs in Core 0
- synchronizing the hard disks

Memory SIMM precautions

Upgrading a CP card consists of the removal of SIMM(s) and the installation of new larger capacity SIMM(s). If you are installing memory SIMMs on the CP cards, view the video tape "CP Card SIMMs Installation Video" included in the upgrade package before attempting this upgrade.

CAUTION

Memory SIMMs are static-sensitive semiconductor devices which require that you take some electrostatic discharge (ESD) precautions. An ESD-safe work station is recommended on which the CP card can be placed. The minimum requirement is a properly-grounded ESD ground strap worn by the upgrade personnel at all times.

- 1 Find and test an appropriate ground point for the antistatic mat, as described in the video tape provided.
- 2 Attach the antistatic mat ground wire to the ground point.
- 3 Place ESD wrist strap on your wrist and connect the wrist strap ground wire to the antistatic mat.

Upgrade preparation

Before proceeding with the upgrade procedure, make a backup copy of the customer database using the data dump routine:

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 3 When "EDD000" appears on the terminal, enter
EDD to begin the data dump
- 4 When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 5 Check total memory allocation before the upgrade.

LD 10 to load the program

When the header for overlay 10 is displayed, note the value associated with Total Memory. After the upgrade, compare Total Memory before and after the upgrade. Total Memory should be greater after the upgrade.

Exit the program:

******** to exit the program

Upgrading Core1

To upgrade a new CP card in Core 1, first split the CPUs:

Split the CPUs

- 1 Verify that the disk drives are synchronized:

LD 137 to load the program

STAT to get the status of the disk drives

If the disks are synchronized, proceed with step 2. If they are not synchronized, execute the SYNC command:

SYNC to synchronize the drives

******** to exit the program

- 2 Verify that CPU 0 is the active CPU:

LD 135 to load the program

STAT CPU to check CPU status

If CPU 0 is active, proceed with step 3. If CPU 0 is not the active CPU, swap CPUs and verify again:

SCPU to swap CPUs

STAT CPU to check CPU status

- 3 Set the MAINT/NORM switch on the NT6D66 CP card in Core 0 to MAINT.
- 4 Set the ENB/DIS switch on all CNI cards in Core 1 to DIS.
- 5 Perform the following three steps in uninterrupted sequence:
 - press and hold the MAN RST button on the CP card in Core 1
 - set the MAINT/NORM switch on the CP card in Core 1 to MAINT
 - release the MAN RST button

The system is now operating in split mode.

Install system software and upgrade ROMs

At this time you will install system software if it is not already installed on the hard drive.

- 1 Connect a terminal to the CPSI port in Core 1 to J25 of the I/O panel at the back of the core. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.
 - 7 data bits
 - 1 stop bit
 - Space parity
 - Full duplex
 - XON protocol
- 2 Set the ENB/DIS switch on the NT6D67 IOP card in Core 1 to DIS and remove the card. Replace the current QMM42 cartridge with the new QMM42 cartridge. Reinstall and enable the card.
- 3 Insert disk A1 from the software package into the CMDU or IOP/CMDU in Core 1.
- 4 Press the MAN RST button on the NT6D66 CP card in Core 1. The system will automatically load the software installation program.

- 5 From the main menu, select the following:

<a>	to install software, CP-BOOT and IOP ROMs
<y>	to confirm installation of all components
<a>	to start the upgrade

Follow the screen directions requiring disk insertion. Multiple disks will be requested.

- 6 When the software installation procedure has completed, select the following options in sequence to perform the ROM upgrade:

<a>	to continue with ROM upgrade
<a>	to continue with CP-BOOT ROM upgrade
<y>	to start installation
<a>	to continue with IOP-ROM upgrade
<y>	to start installation

- 7 Remove any diskettes from the CMDU or IOP/CMDU.

- 8 Select the following options to quit and reload the system:

<q>	to quit
<yes>	to confirm quit
<a>	to reboot the system

Upgrading the NT6D66AA CP card memory in Core 1

- 1 Press the MAN RST button on the NT6D66AA CP card in Core 1 and then immediately disengage the lock latches and remove the card.
- 2 Place the CP card SIMM-side up on the antistatic mat.
- 3 Locate the two SIMMs designated T5 and T6 (see Figure 3).
- 4 Remove the SIMM from location T6 first, then from location T5:
 - Using the non-conductive screw driver provided, carefully move each latch away first from one end of the SIMM, and then the other end. The SIMM will pivot away from the others until it is at approximately a 50- to 70-degree angle to the board (see Figure 4).

Figure 3
SIMM Identification on the NT6D66AA CP card

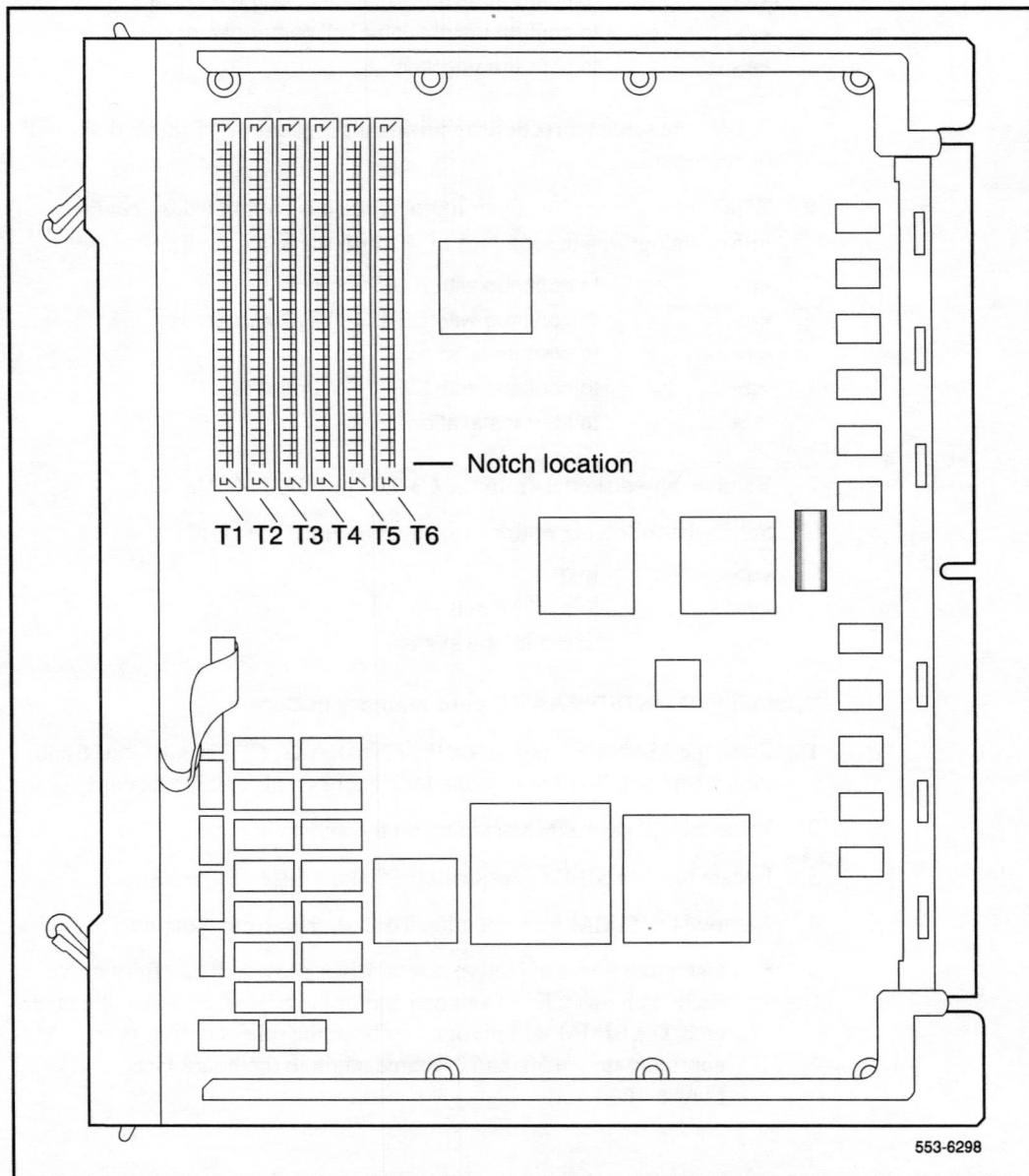
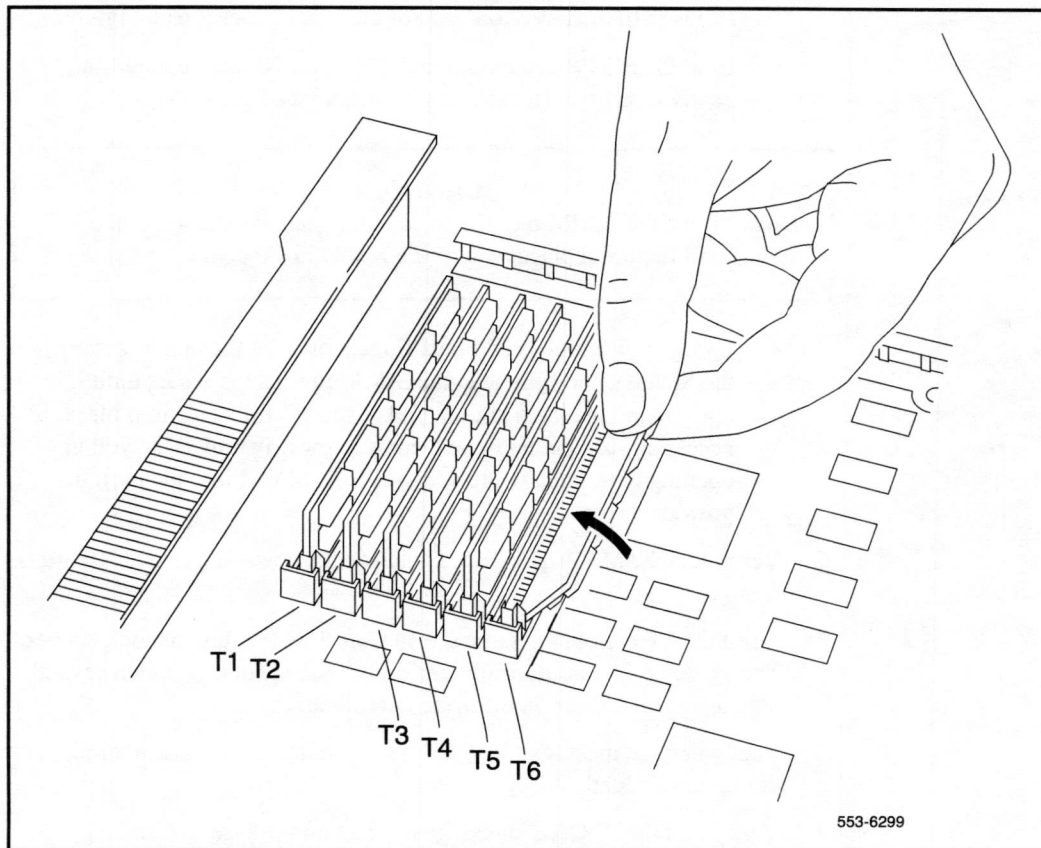


Figure 4
SIMM Installation on the NT6D66AA CP card



Note: If, using the non-conductive screw driver, the SIMM does not release from the latches, use your thumbnails, one on each latch, to release the latches: for plastic latches, the latches are located on the ends of each SIMM; for metal latches, levers protrude from each latch. Carefully move the latches outward simultaneously until the SIMM pivots away from the others and it is at approximately a 50- to 70-degree angle to the board.

- Gently lift the old SIMM out of the socket.

- 5 Install a new 16 MB SIMM at location T5 first, then one at location T6:
 - Orient the new SIMM so that the notch at one end of the SIMM aligns with the key at one end of the SIMM socket (see Figure 3).
 - Hold the SIMM at approximately a 50- to 70-degree angle and gently insert the SIMM into the socket (see Figure 4).

CAUTION

Do not force the SIMM into the socket. Any damage caused to the socket will require replacement of the NT6D66 CP card.

- Using your thumbs and index fingers only (at the upper corners of the SIMM), carefully lean the SIMM toward the others until it is upright and the latch at each end of the SIMM snaps into place. If necessary, use the non-conductive screw driver to assist you in opening each latch while you move the SIMM into the upright position.
- 6 Verify that the MAINT/NORM switch on the newly upgraded CP card is set to MAINT.
 - 7 Insert the CP card in the same slot in Core 1 and secure the lock latches. The system will automatically perform a sysload during which several messages will appear on the system terminal.
 - 8 Verify that the message "SYS702 48" appears on the system terminal during the sysload.
 - 9 Verify that the "DONE" message appears on the system terminal.
Note: The SYSTEM INI message may take 70 seconds or more to appear.
 - 10 After the system initializes, log into the system.
 - 11 Set date and time:

LD 2	to load the overlay
STAD	DD MM YY HR MN SC

- 12 Configure the system with the new memory configuration:

LD 17 to load the overlay

- 13 For each prompt, type the following response:

REQ CHG
TYPE CEQU

- 14 Press the RETURN key until the "MCFN" prompt appears, then type

MCFN 4 4 4 4 16 16

Note: Be sure to insert one space between the values when typing.

- 15 Press the RETURN key until the "REQ" prompt appears and then enter:

REQ ****

- 16 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

- 17 When "EDD000" appears on the terminal, enter

EDD to begin the data dump

- 18 When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 19 Set the ENB/DIS switch on the IOP or IOP/CMDU card to DIS in Core 0.
- 20 Set the ENB/DIS switches on all CNI cards in Core 1 to ENB.

- 21 Set the ENB/DIS switches on all CNI cards in Core 0 to DIS.

CAUTION

Disabling CNI cards in Core 0 will momentarily interrupt call processing. Calls established or in process will be dropped. Call processing will resume after the "SYSTEM INI" messages appear on the system terminal (approximately 1 minute).

- 22 Press the MAN INT button on the CP Card in Core 1.

After the system initialization has finished (INI messages are no longer displayed on the system terminal), check for dial tone on a telephone set. If dial tone is present, proceed with the next step.

Upgrading Core 0

Once the CP card in Core 1 is upgraded, you may proceed to upgrade the CP card in Core 0:

- 1 Connect a terminal to the CPSI port in Core 1 to J25 of the I/O panel at the back of the core. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.
 - 7 data bits
 - 1 stop bit
 - Space parity
 - Full duplex
 - XON protocol
- 2 Verify that the MAINT/NORM switch on the CP card in Core 0 is set to MAINT.
- 3 Verify that the ENB/DIS switches on all CNI cards in Core 0 are set to DIS.
- 4 Verify that the ENB/DIS switch on the IOP or IOP/CMDU card in Core 0 is set to DIS and remove the card. Replace the current QMM42 cartridge with the new QMM42 cartridge. Reinstall and enable the card.

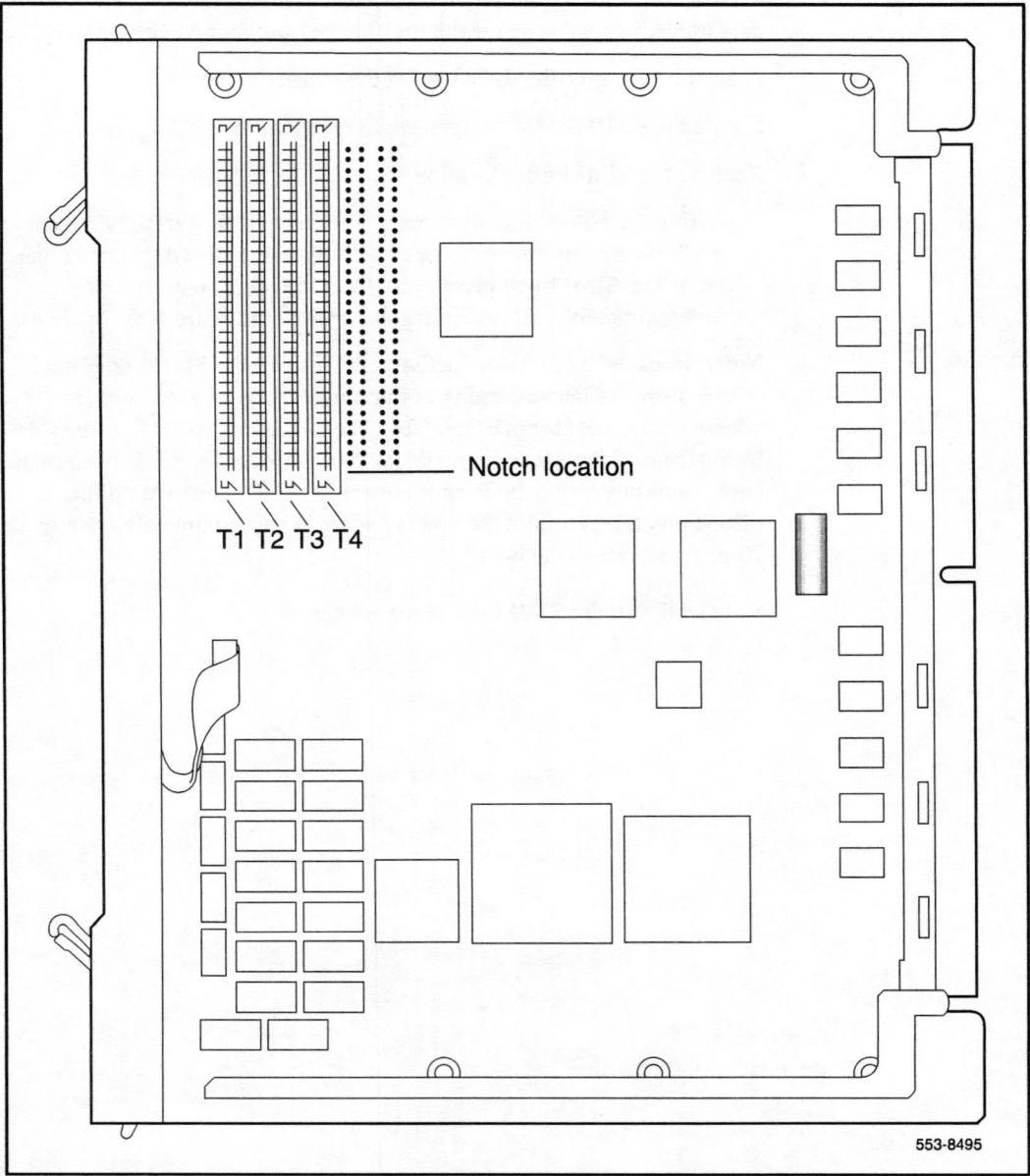
Upgrading the NT6D66BAB CP card memory in Core 1

- 1** Press the MAN RST button on the NT6D66AB CP card in Core 1 and then immediately disengage the lock latches and remove the card.
- 2** Place the CP card SIMM-side up on the antistatic mat.
- 3** Locate the 8 MB SIMM designated T3 (see Figure 3) .
- 4** Remove the SIMM from location T3:
 - Using the non-conductive screw driver provided, carefully move each latch away first from one end of the SIMM, and then the other end. The SIMM will pivot away from the others until it is at approximately a 50- to 70-degree angle to the board (see Figure 4).

Note: If, using the non-conductive screw driver, the SIMM does not release from the latches, use your thumbnails, one on each latch, to release the latches: for plastic latches, the latches are located on the side facing the card faceplate; for metal latches, the levers protrude from each latch. Carefully move the latches outward simultaneously until the SIMM pivots away from the others and it is at approximately a 50- to 70-degree angle to the board

- Gently lift the SIMM out of the socket.

Figure 5
NT6D66AB/DB CP card SIMM Identification



- 5 Install each of the two new 16 MB SIMMs beginning with SIMM socket T3:
 - Orient the new SIMM so that the notch at one end of the SIMM aligns with the key at one end of the SIMM socket (see Figure 5 on page 222).
 - Hold the SIMM at approximately a 50- to 70-degree angle and gently insert the SIMM into the socket (see Figure 6 on page 224).

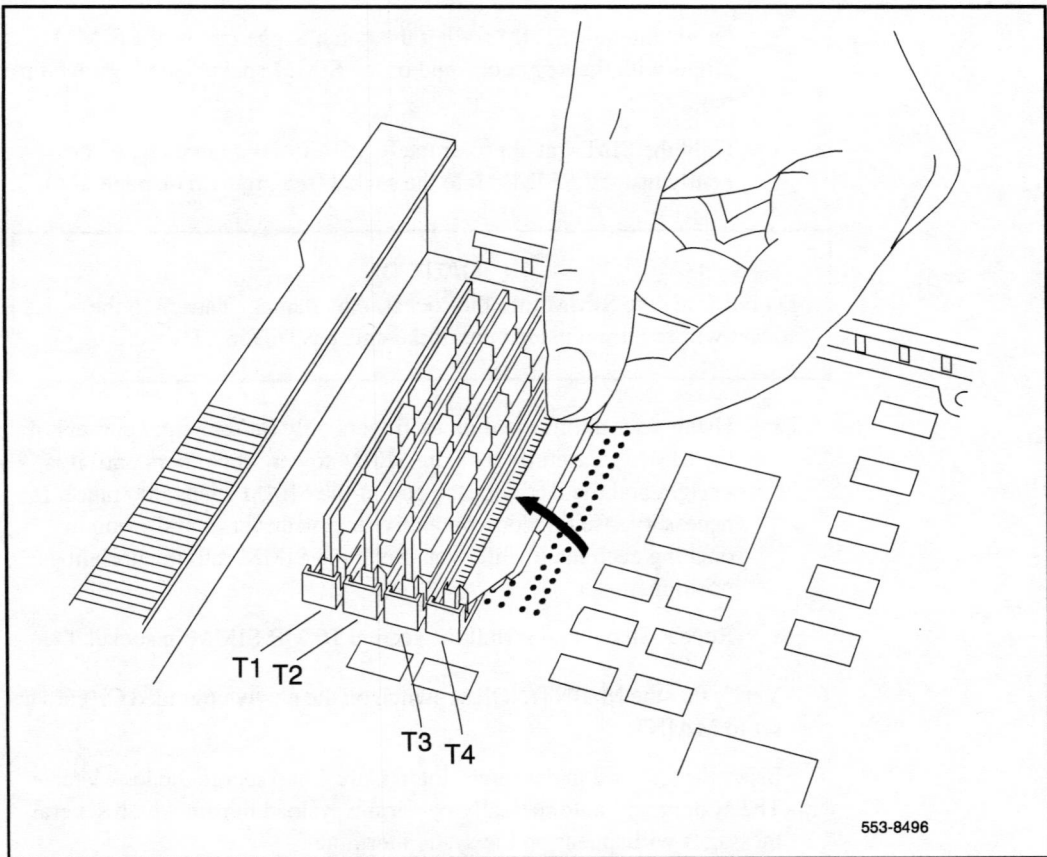
CAUTION

Do not force the SIMM into the socket. Any damage caused to the socket will require replacement of the entire NT6D66 CP card.

- Using your thumbs and index fingers only (at the upper corners of the SIMM), carefully lean the SIMM toward the others until it is upright and the latch at each end of the SIMM snaps into place. If necessary, use the non-conductive screw driver to assist you in opening each latch while you move the SIMM into the upright position.
 - Repeat Step 4 and install the second 16 MB SIMM in socket T4.
- 6 Verify that the MAINT/NORM switch on the newly upgraded CP card is set to MAINT.
 - 7 Insert the CP card in the same slot in Core 1 and secure the lock latches. The system will automatically perform a sysload during which several messages will appear on the system terminal.
 - 8 Verify that the message "SYS702 48" appears on the system terminal during the sysload.
 - 9 Verify that the "DONE" message appears on the system terminal.

Note: The SYSTEM INI message may take 70 seconds or more to appear.
 - 10 After the system initializes, log into the system.

Figure 6
NT6D66AB/DB CP card SIMM Installation



11 Set date and time:

LD 2	to load the overlay
STAD	DD MM YY HR MN SC

12 Configure the system with the new memory configuration:

LD 17	to load the overlay
--------------	---------------------

- 13 For each prompt, type the following response:

REQ	CHG
TYPE	CEQU

- 14 Press the RETURN key until the "MCFN" prompt appears, then type:

MCFN **8 8 16 16**

Note: Be sure to insert one space between the values when typing.

- 15 Press the RETURN key until the "REQ" prompt appears and then enter:

REQ ********

- 16 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

- 17 When "EDD000" appears on the terminal, enter

EDD to begin the data dump

- 18 When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 19 Set the ENB/DIS switch on the IOP or IOP/CMDU card to DIS in Core 0.
- 20 Set the ENB/DIS switches on all CNI cards in Core 1 to ENB.

- 21 Set the ENB/DIS switches on all CNI cards in Core 0 to DIS.

CAUTION

Disabling CNI cards in Core 0 will momentarily interrupt call processing. Calls established or in process will be dropped. Call processing will resume after the "SYSTEM INI" messages appear on the system terminal (approximately 1 minute).

- 22 Press the MAN INT button on the CP Card in Core 1.

After the system initialization has finished (INI messages are no longer displayed on the system terminal), check for dial tone on a telephone set. If dial tone is present, proceed with the next step.

Upgrading Core 0

Once the CP card in Core 1 is upgraded, you may proceed to upgrade the CP card in Core 0:

- 1 Connect a terminal to the CPSI port in Core 1 to J25 of the I/O panel at the back of the core. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.
 - 7 data bits
 - 1 stop bit
 - Space parity
 - Full duplex
 - XON protocol
- 2 Verify that the MAINT/NORM switch on the CP card in Core 0 is set to MAINT.
- 3 Verify that the ENB/DIS switches on all CNI cards in Core 0 are set to DIS.
- 4 Verify that the ENB/DIS switch on the IOP or IOP/CMDU card in Core 0 is set to DIS and remove the card. Replace the current QMM42 cartridge with the new QMM42 cartridge. Reinstall and enable the card.

Updating CP ROMs

- 1 Insert disk A1 from the software upgrade package into CMDU or IOP/CMDU 0.
- 2 Verify that the MAINT/NORM switch on the NT6D66 CP card in Core 0 is set to MAINT.
- 3 Press the MAN RST button on the CP card in Core 0. The system will automatically load the software installation program.
- 4 At the main menu, select the following options to upgrade the CP ROMs and follow the screen directions to update the CP ROMs from the floppy disk:

<e>	to upgrade CP ROMs only
<y>	to start the upgrade
	to upgrade CP ROMs from floppy disk

Follow all screen directions until you have upgraded the CP ROMs.

- 5 When the CP ROM upgrade is complete, select the option to return to the main menu.
- 6 At the main menu, select the following options to upgrade the IOP ROMs and follow the screen directions to update the IOP ROMs from the floppy disk:

<f>	to upgrade IOP ROMs only
<y>	to start the upgrade
	to upgrade IOP ROMs from floppy disk

Follow the screen directions to complete the IOP ROM upgrade and return to the main menu.

- 7 Select the following options to quit:

<q>	to quit
<yes>	to confirm quit
- 8 Remove the diskette from the CMDU or IOP/CMDU in Core 0.
- 9 Press the MAN RST button on the NT6D66 CP card in Core 0 and then immediately disengage the lock latches and remove the card.

Updating the core 0 NT6D66AA CP card memory

- 1 Place the CP card SIMM-side up on the antistatic mat.
- 2 Locate the two 4 MB SIMMs designated T5 and T6 (see Figure 3 on page 216)
- 3 Remove the SIMM from location T6 first, then from location T5:
 - Using the non-conductive screw driver provided, carefully move each latch away first from one end of the SIMM, and then the other end. The SIMM will pivot away from the others until it is at approximately a 50- to 70-degree angle to the board (see Figure 4 on page 217).

Note: If, using the non-conductive screw driver, the SIMM does not release from the latches, use your thumbnails, one on each latch, to release the latches: for plastic latches, the latches are located on the ends of each SIMM; for metal latches, levers protrude from each latch. Carefully move the latches outward simultaneously until the SIMM pivots away from the others and it is at approximately a 50- to 70-degree angle to the board.

- Gently lift the SIMM out of the socket.

Updating the core 0 NT6D66AB CP card memory

- 1 Place the CP card SIMM-side up on the antistatic mat.
- 2 Locate the 8 MB SIMM designated T3 (see Figure 5 on page 222)
- 3 Remove the SIMM from location T3:
 - Using the non-conductive screw driver provided, carefully move each latch away first from one end of the SIMM, and then the other end. The SIMM will pivot away from the others until it is at approximately a 50- to 70-degree angle to the board (see Figure 6 on page 224).

Note: If, using the non-conductive screw driver, the SIMM does not release from the latches, use your thumbnails, one on each latch, to release the latches: for plastic latches, the latches are located on the ends of each SIMM; for metal latches, levers protrude from each latch. Carefully move the latches outward simultaneously until the SIMM pivots away from the others and it is at approximately a 50- to 70-degree angle to the board.

- Gently lift the SIMM out of the socket.
- 4 Install a new 16 MB SIMM at location T3 first, then one at location T4:
- Orient the new SIMM so that the notch at one end of the SIMM aligns with the key at one end of the SIMM socket (see Figure 5 on page 222).
 - Hold the SIMM at approximately a 50- to 70-degree angle and gently insert the SIMM into the socket (see Figure 6 on page 224).

CAUTION

Do not force the SIMM into the socket. Any damage caused to the socket will require replacement of the NT6D66 CP card.

- Using your thumbs and index fingers only (at the upper corners of the SIMM), carefully lean the SIMM toward the others until it is upright and the latch at each end of the SIMM snaps into place. If necessary, use the non-conductive screw driver to assist you in opening each latch while you move the SIMM into the upright position.
- 5 Insert the CP card in the same slot in Core 0 and secure the lock latches. The system will automatically perform a sysload during which several messages will appear on the system terminal. Verify that the message "SYS702 48" appears on the terminal during the sysload.

6 Perform the following three steps in rapid succession:

- Press and hold the MAN RST button
- Set the MAINT/NORM switch on the CP card in Core 0 to NORM
- Release the MAN RST button

Within 10 minutes, an "HWI533" message from the CPSI (Core 1) or SDI port indicates that the contents of Core 0 memory is copied to Core 1 memory. Wait until the memory synchronization is complete before continuing.

7 Set the ENB/DIS switches on all CNI cards in Core 0 to ENB.

Completing the upgrade

To complete the field upgrade of the new NT6D66 CP card, synchronize the disk drives, verify CPU and CNI status, and apply the new labels:

1 Check total memory allocation after the upgrade.

LD 10 to load the program

When the header for overlay 10 is displayed, note the value associated with Total Memory. Compare Total Memory before and after the upgrade. Total Memory should be greater after the upgrade.

Exit the program:

******** to exit the program

2 Synchronize the disk drives:

LD 137 to load the overlay

SYNC to synchronize the disk drives

******** to exit the program

3 Verify CPU redundancy and CNI function:

LD 135	to load the overlay
STAT CPU	to check the status of CPU 0
STAT CNI	to verify function of CNIs in Core 0
TEST CPU	to test CPU 0
SCPU	switch to CPU 0
STAT CPU	to check the status of CPU 1
STAT CNI	to verify function of CNIs in Core 1
TEST CPU	to test CPU 1
SCPU	switch to CPU 1
****	to exit the program

4 Apply the new NT6D66DA labels over the NT6D66AA card designation on the faceplate of each NT6D66AA CP card upgraded, or apply new NT6D66DB labels over the NT6D66AB card designation on the faceplate of each NT6D66AB CP card upgraded.

The field upgrade of existing 24MB to 48MB CP cards is complete.

Replacing 24 MB CP cards with new 48 MB CP cards

These procedures include instructions describing how to install new 48 MB NT6D66DA/DB CP cards.

Upgrading the CP Card consists of

- splitting the CPUs
- upgrading the system software on Core 1
- installing the new 48 MB CP card in Core 1
- upgrading the ROMs in Core 1
- swapping CPUs
- installing the new 48 MB CP card in Core 0
- upgrading the ROMs in Core 0
- synchronizing the hard disks

Upgrade preparation

Before proceeding with the upgrade procedure, make a backup copy of the customer database using the data dump routine:

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
 LD 43 to load the program
- 3 When "EDD000" appears on the terminal, enter
 EDD to begin the data dump
- 4 When "DATABASE BACKUP COMPLETE" or "DATADUMP
 COMPLETE" appears on the terminal, enter
 ******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 5 Check total memory allocation before the upgrade.

LD 10 to load the program

When the header for overlay 10 is displayed, note the value associated with Total Memory. After the upgrade, compare Total Memory before and after the upgrade. Total Memory should be greater after the upgrade.

Exit the program:

******** to exit the program

Upgrading Core1

To install a new CP card in Core 1, first split the CPUs:

Split the CPUs

- 1 Verify that the disk drives are synchronized:

LD 137 to load the program

STAT to get the status of the disk drives

If the disks are synchronized, proceed with step 2. If they are not synchronized, execute the SYNC command:

SYNC to synchronize the drives

******** to exit the program

- 2 Verify that CPU 0 is the active CPU:

LD 135 to load the program

STAT CPU to check CPU status

If CPU 0 is active, proceed with step 3. If CPU 0 is not the active CPU, swap CPUs and verify again:

SCPU to swap CPUs

STAT CPU to check CPU status

- 3 Set the MAINT/NORM switch on the NT6D66DA/DB CP card in Core 0 to MAINT.
- 4 Set the ENB/DIS switch on all CNI cards in Core 1 to DIS.

- 5** Perform the following three steps in uninterrupted sequence:
 - press and hold the MAN RST button on the CP card in Core 1
 - set the MAINT/NORM switch on the CP card in Core 1 to MAINT
 - release the MAN RST button
- 6** Set the ENB/DIS switch on the NT6D67 IOP card in Core 1 to DIS and remove the card. Replace the current QMM42 cartridge with the new QMM42 cartridge. Reinstall and enable the card.

Install system software

At this time you will install system software if it is not already installed on the hard drive. Install the system software onto the hard drive using the instructions in Procedure 11: Software Installation Tool. Choose option *c* from the Software Installation Tool main menu to insure installation of the new system software.

- 1 Connect a terminal to the CPSI port in Core 1 to J25 of the I/O panel at the back of the core. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.
 - 7 data bits
 - 1 stop bit
 - Space parity
 - Full duplex
 - XON protocol
- 2 To activate the Software Installation Tool, insert disk A1 from the software package into the CMDU or IOP/CMDU in Core 1.
- 3 Press the MAN RST button on the NT6D66DA/DB CP card in Core 1. The system will automatically load the software installation program.
- 4 From the main menu, select the following:

<c>	to install software
<y>	to confirm installation of all components
<a>	to start the upgrade

Follow the screen directions requiring disk insertion. Additional disks will be requested. When software installation is complete, return to the main menu.

- 5 Remove the disk from the CMDU or IOP/CMDU.

CAUTION

Do not reboot the system from the Installation Tool menu at this time. Continue with the next section.

Replacing the CP card and updating ROMs in Core 1

- 1 Press the MAN RST button on the NT6D66AA/AB CP card in Core 1 and then immediately disengage the lock latches and remove the card.
- 2 Verify that the MAINT/NORM switch on the new NT6D66DA/DB CP card is set to MAINT.
- 3 Insert disk A1 from the software upgrade package into CMDU or IOP/CMDU 1.
- 4 Insert the new NT6D66DA/DB CP card in the same slot in Core 1 and secure the lock latches. The system will automatically load the software installation program.
- 5 At the main menu, select the following options to upgrade the CP ROMs and follow the screen directions to update the CP ROMs from the hard disk drive.
 - <e> to upgrade CP ROMs only
 - <y> to start the upgrade
 - <a> to upgrade CP ROMs from hard disk drive

Follow all screen directions until you have upgraded the CP ROMs.

- 6 When the CP ROM upgrade is complete, select the option to return to the main menu.
- 7 At the main menu, select the following options to upgrade the IOP ROMs and follow the screen directions to update the IOP ROMs from the hard disk drive:
 - <f> to upgrade IOP ROMs only
 - <y> to start the upgrade
 - <a> to upgrade IOP ROMs from hard disk drive

Follow the screen directions to complete the IOP ROM upgrade and return to the main menu.

- 8 Remove the diskette from CMDU or IOP/CMDU 1.

- 9 Select the The following options to quit and reload the system:

<q>	to quit
<y>	to confirm quit
<a>	to reboot the system
- 10 Power cycle the CP card in Core 1 as follows: Press the MAN RST button and then immediately disengage the lock latches and unseat the card from the backplane. Wait 5 seconds, reinsert the CP card, and secure the lock latches.
- 11 The system will automatically perform a sysload. Verify that the message "SYS702 48" appears on the system terminal during the sysload.
- 12 Verify that the "DONE" message appears on the system terminal.
Note: The SYSTEM INI message may take 70 seconds or more to appear.
- 13 After the system initializes, log into the system.
- 14 Set date and time:

LD 2	to load the overlay
STAD	DD MM YY HR MN SC
- 15 Configure the system with the new memory configuration:

LD 17	to load the overlay
--------------	---------------------
- 16 For each prompt, type the following response:

REQ	CHG
TYPE	CEQU

- 17 Press the RETURN key until the "MCFN" prompt for a NT6D66DA CP card appears, then type:

MCFN **4 4 4 4 16 16**

or,

Press the RETURN key until the "MCFN" prompt for a NT6D66DB CP card appears, then type:

MCFN **8 8 16 16**

Note: Be sure to insert one space between the values when typing.

- 18 Press the RETURN key until the "REQ" prompt appears and then enter:

REQ ********

- 19 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

- 20 When "EDD000" appears on the terminal, enter

EDD to begin the data dump

- 21 When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 22 Set the ENB/DIS switch on the IOP/CMDU card to DIS in Core 0.
23 Set the ENB/DIS switches on all CNI cards in Core 1 to ENB.

- 24 Set the ENB/DIS switches on all CNI cards in Core 0 to DIS.

CAUTION

Disabling CNI cards in Core 0 will momentarily interrupt call processing. Calls established or in process will be dropped. Call processing will resume after the "SYSTEM INI" messages appear on the system terminal (approximately 1 minute).

- 25 Press the MAN INT button on the CP Card in Core 1.

After the system initialization has finished (INI messages are no longer displayed on the system terminal), check for dial tone on a telephone set. If dial tone is present, proceed with the next step.

Upgrading Core 0

Once the CP card in Core 1 is upgraded, you may proceed to upgrade the CP card in Core 0:

- 1 Verify that the MAINT/NORM switch on the CP card in Core 0 is set to MAINT.
- 2 Verify that the ENB/DIS switches on all CNI cards in Core 0 are set to DIS.
- 3 Verify that the ENB/DIS switch on the IOP or IOP/CMDU card in Core 0 is set to DIS and remove the card. Replace the current QMM42 cartridge with the new QMM42 cartridge. Reinstall and enable the card.

Replacing the CP card and updating ROMs in Core 0

- 1 Connect a terminal to the CPSI port in Core 1 to J25 of the I/O panel at the back of the core. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.
 - 7 data bits
 - 1 stop bit
 - Space parity
 - Full duplex
 - XON protocol

- 2 Press the MAN RST button on the NT6D66AA/AB CP card in Core 0 and then immediately disengage the lock latches and remove the card.
- 3 Insert disk A1 from the software upgrade package into CMDU or IOP/CMDU 0.
- 4 Verify that the MAINT/NORM switch on the new NT6D66DA/DB CP card is set to MAINT.
- 5 Insert a new NT6D66DA/DB CP card in the same slot in Core 0 and secure the lock latches. The system will automatically load the software installation program.
- 6 At the main menu, select option *e* to upgrade the CP ROMs and follow the screen directions to update the CP ROMs from the floppy disk.
- 7 When the install screen appears, select the following options in sequence when you are prompted to do so:
 - <e> to upgrade CP ROMs only
 - <y> to start the upgrade
 - to upgrade CP ROMs from floppy disk

Follow all screen directions until you have upgraded the CP ROMs.

- 8 When the CP ROM upgrade is complete, select the option to return to the main menu.
- 9 At the main menu, select the following options to upgrade the IOP ROMs and follow the screen directions to update the IOP ROMs from the hard disk drive:
 - <f> to upgrade IOP ROMs only
 - <y> to start the upgrade
 - <a> to upgrade IOP ROMs from hard disk drive

Follow the screen directions to complete the IOP ROM upgrade and return to the main menu.

- 10 Select the following options to quit and reload the system:
 - <q> to quit
 - <yes> to confirm quit

- 11 Power cycle the CP card in Core 0 as follows: Press the MAN RST button and then immediately disengage the lock latches and unseat the card from the backplane. Wait 5 seconds, reinsert the CP card, and secure the lock latches.

The system will automatically perform a sysload during which several messages will appear on the system terminal. Verify that the message "SYS702 48" appears on the terminal during the sysload.

- 12 Perform the following three steps in rapid succession:
 - Press and hold the MAN RST button
 - Set the MAINT/NORM switch on the CP card in Core 0 to NORM
 - Release the MAN RST button

A "HW1534" message from the CPSI (Core1) or SDI port indicates the start of memory synchronization. Within 10 minutes, an "HWI533" message from the CPSI or SDI port indicates that the contents of Core 0 memory is copied to Core 1 memory. Wait until the memory synchronization is complete before continuing.

- 13 Set the ENB/DIS switches on all CNI cards in Core 0 to ENB.

Completing the upgrade

To complete the field upgrade of the new NT6D66DA/DB CP card, synchronize the disk drives, and verify CPU and CNI status:

- 1 Check total memory allocation after the upgrade.

LD 10 to load the program

When the header for overlay 10 is displayed, note the value associated with Total Memory. Compare Total Memory before and after the upgrade. Total Memory should be greater after the upgrade.

Exit the program:

******** to exit the program

- 2 Synchronize the disk drives:

LD 137 to load the overlay

SYNC to synchronize the disk drives
******** to exit the program

3 Verify CPU redundancy and CNI function:

LD 135 to load the overlay
STAT CPU to check the status of CPU 0
STAT CNI to verify function of CNIs in Core 0
TEST CPU to test CPU 0
SCPU switch to CPU 0
STAT CPU to check the status of CPU 1
STAT CNI to verify function of CNIs in Core 1
TEST CPU to test CPU 1
SCPU switch to CPU 1
******** to exit the program

The field upgrade using new 48 MB CP cards is complete.

Procedure 11: Software Installation Tool

Note: This section describes the Software Installation Tool for systems without the NT5D61 IODU/C card. For information on the Software Installation Tool for systems with IODU/C, refer to “Procedure 14: CD-ROM Software Installation Tool” in this document.

Use this procedure to install only the specific items listed here.

The Software Installation Tool is for use with options 51C, 61C, 81, and 81C systems to convert software and system components to a later release, or to upissue within the same release for systems running X11 release 18 and later (option 61C is available with X11 release 19 and later; option 51C is available with X11 release 20 and later).

The Software Installation Tool is comprised of multiple 3.5-inch 4 MB extra high density (ED) disks. Program disks are labeled A1, A2, A3, ...; two are used to store the database and are labeled B1 database and B1 backup database. Be sure the correct disk is installed in the drive before performing a procedure.

The options available with the Software Installation Tool are listed below. Additionally, a tools menu is used to update the system time and date and view the hard disk partition size.

- Install the system software
- Install or transfer the customer database
- Upgrade the CP and/or IOP ROMs

System **patches are deleted** when converting to a new X11 software release, or when performing a software upissue. System patches must be removed prior to conversion or data corruption may occur. Software **patches are not deleted** when the same software release is reinstalled in the system.

There are two different procedures in this chapter for installing software and database, and upgrading ROMs. You will perform only one of these procedures, depending upon the type of call processor (CP) card installed in your system.

Depending upon your system call processor card, refer to “Installation on systems with NT6D66 CP cards” on page 275 or “Installation on systems with NT9D19, NT5D10 or NT5D03 CP cards” on page 248. These sections are intended as a guide through the procedure. General reference information can be found in “NT6D66 CP card installation tool reference” on page 283 or “NT9D19, NT9D10 and NT5D03 CP card installation tool reference” on page 259.

Do not turn off the system during the installation process. If you need to quit the installation process, do so from within the Software Installation Tool before powering off the system.

Read this entire procedure before attempting to perform an installation.

General information

The options available with the Software Installation Tool are listed below. Additionally, a tools menu is used to update the system time and date and view the hard disk partition size.

- Install the system software

- Install or transfer the customer database
- Upgrade the CP and/or IOP ROMs

CAUTION

The screens shown in this procedure are examples. They are not intended to exactly represent the displays that will appear for your system, nor do the choices entered represent those you should necessarily choose. Be sure to watch the terminal display, and follow the on-screen instructions.

Pay close attention to the menus when they appear; they display the options available at any given stage.

When you press <CR>, the Software Installation Tool performs system and disk checks to be sure the installation can take place. If there is a problem, the Software Installation Tool stops the process and prints a system message. The message indicates the problem found and any necessary action.

Throughout the process, status messages appear on the TTY display. Shown below are the status messages received after pressing <CR>.

```
> OBTAIN and CHECK SYSTEM CONFIGURATION.  
> Validate hard disk partitions.  
> Obtain database file names.  
> Process the Install Control file.  
> Installing for release [X11 release number].  
> System Information obtained successfully.
```

```
System Date and Time now is:  
Saturday 04-01-1995, 15:37:04
```

If the system time and date is not set, a time and date shown is 00-00-0000, 00:00:00. The Software Installation Tool prompts for an update, and it can be entered at this time. Be sure the correct time and date is set before proceeding with the installation. This can be changed at any time with the Tools Menu.

Status summary chart

The summary chart appears for all the installation options. This example is shown when option (all components) is chosen from the main menu.

Note: Your screen may differ from the below example.

INSTALLATION STATUS SUMMARY

Number of disks: 8

Site Identification: <customer ID number>

Option	Selection	Status	Comment
Software	yes		from rel <number> to <number>
Database	yes		
CP-ROM	yes		
IO-ROM	yes		

553-5539

Please enter:

<CR> --> <y> - Yes, start Installation now.

 <n> - No, stop Installation. Go back to Main Menu

Enter choice >

The possible values and meanings for each column are defined below.

— Selection

- **yes** indicates the item will be installed.
- **no** indicates the item was not selected, and will not be updated.

— Status

- **quit** indicates the quit option was used, and the process was exited.
- **ok** indicates the selection was installed successfully.
- **error** indicates the installation was not successful. A system message is given when the Software Installation Tool encounters a problem. Follow the actions required by the message.
- **ignore** applies to the CP ROM and IOP ROM upgrade only. This appears when the process was exited when asked to replace a release and issue with the same release and issue.
- **blank** indicates the status is not yet determined if Selection = Yes. If Selection = No, the field remains blank.

— Comment

- **from rel <number> to rel <number>** gives the Source and Target release and issue numbers.

Messages

When the Software Installation Tool encounters a problem, a system message appears on the terminal display. These messages fall into two categories: warning and non-warning.

Warning messages are not critical errors. The Software Installation Tool proceeds with the installation following the appearance of this message. Refer to *X11 input/output guide* for details regarding these messages.

Non-warning messages appear when a critical problem is encountered. The Software Installation Tool stops the process, and an action is recommended. When the action is complete, the Software Installation Tool can be restarted. In some cases, the tool allows you to restart by pressing the carriage return <CR>.

Installation messages (INST) are defined fully in *X11 input/output guide*. Refer to that document for more details.

Installation on systems with NT9D19, NT5D10 or NT5D03 CP cards

These are the exact steps used to perform the conversion required on systems that have NT9D19, NT5D10 or NT5D03 CP cards installed. All the steps begin with the main menu. If more information is needed, refer to “NT9D19, NT9D10 and NT5D03 CP card installation tool reference” on page 259.

The following are the recommended options to choose for certain situations.

- When upissuing software within the same release, adding new software packages, or going to a later X11 release, choose the default option <a>.
- When upgrading to an Option 51C/61C/81 or 81C system, or for a new Option 51C/61C/81 or 81C installation, choose option .
- When a specific component is required, choose options <c>, <d>, <e>, <f>, or <g>.

Note: When installing new software, it is always recommended to upgrade the ROMs as well.

When the procedure is complete, the Software Installation Tool does not automatically restart. You will be prompted that the process is complete and you may choose another option if necessary. Quitting the process automatically restarts the system. Do *not* press the RST button on either side.

Note: Be sure to install new system software and upgrade ROMs on *both* cores.

Main menu

Before the Software Installation Tool is activated, verify that the system is in split mode and a terminal is connected to the CPSI port (J25) in the inactive Core.

To activate the Software Installation Tool, insert disk A1 from the software package into the inactive CMDU or IOP/CMDU. Press the MAN RST button on the NT9D19 CP Card in the same Core.

Throughout the installation, the option to stop and return to the main menu is always available. The main menu shows all the available options.

```

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
= = = = =
  
```

M A I N M E N U

This tool will install or upgrade your Meridian-1 System Software, Database and PE-ROM (both CP and IOP ROM). You will be prompted throughout the installation and given the opportunity to Quit at any time.

Please enter:

<CR>-->

- <a> - To install Software, CP-BOOT ROM, IOP-ROM.
- - To install Software, Database, CP-BOOT ROM, IOP-ROM.
- <c> - To install Software only.
- <d> - To install Database only.
- <e> - To install CP-BOOT ROM only.
- <f> - To install IOP-ROM only.
- <g> - To reinstall CP-software.
- <t> - To go to the Tools Menu.
- <q> - Quit.

Enter choice >

Splitting the Cores

Use the following procedure to place the system in split mode and transfer call processing to Core 0.

Note: This procedure is not applicable to the option 51C.

- 1 If Core 1 is active, switch Cores:

STAT CPU	to get the status of the Cores
SCPU	to switch to Core 0 (if necessary)
****	to exit the program

- 2 In Core 0, set the NORM/MAINT faceplate switch on the CP card to MAINT.
- 3 In Core 1, set the ENB/DIS switch on all NT6D65 CNI cards to DIS.
- 4 In Core 1, set the NORM/MAINT faceplate switch on the CP card to MAINT.
- 5 Press the MAN RST button on the CP card in Core 1.

The system is now operating in split mode.

Installing software, database, and ROMs

Use this procedure when upgrading to an option 51C, 61C, 81, or 81C, or for a new option 51C, 61C, 81, 81C installation.

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

Enter the following commands to install the software, database, and ROM requirements for your system.

- 1 From the main menu, select the following:

	to install all components
<y>	to confirm that you want to install all the components
<a>	to start the upgrade

Follow the screen directions requiring disk insertion. A number of disks will be requested. After the software has been copied from the floppies to the hard disk, the software on the flash ROM will be updated with this new software. When everything except the database has been installed, the database installation menu appears. The system database can be installed from the B1 database disk, or from an existing backup disk.

- 2 From the menu select the following:

<a>	to install the default database from the B1 disk
OR	
	to install the database from an existing backup disk
<y>	to begin the installation

- 3 Following the database installation, install the CP and IOP ROMs. From the menu select the following:

CAUTION

If a previous attempt to install software on the CP flash ROMs was not successful, do not update the CP-BOOT ROMs; resolve any problem with CP flash ROM updating before attempting to update the CP-BOOT ROMs.

For CP-BOOT ROM:

<a> to install CP-BOOT ROM only
<y> to start installation

Follow screen directions until the menu returns.

For IOP ROM:

<a> to install IOP ROM only
<y> to start installation

Follow screen directions until the menu returns.

- 4 Remove the disk from the CMDU or IOP/CMDU.
- 5 Quit and reload the system. From the main menu, select
 <q> to quit
 <y> to confirm quit
 <a> to reboot the system
- 6 Repeat this procedure for the second core.

Installing software and ROMs

Use this procedure when going to a later X11 release, adding software packages, or for a software upissue.

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

Enter the following commands to install the software and update ROMs for your system.

- 1 From the main menu, select the following:

<a>	to install software, CP-BOOT ROM and IOP ROM
<y>	to confirm that you want to install all the components
<a>	to start the upgrade
- 2 Follow the screen directions requiring disk insertion. A number of disks will be requested.
- 3 After the software has been copied from the floppies to the hard disk, the software on the flash ROM will be updated with this new software. Following the software installation, install the CP and IOP ROMs. From the menu select the following:

CAUTION

If a previous attempt to install software on the CP flash ROMs was not successful, do not update the CP-BOOT ROMs; resolve any problem with CP flash ROM updating before attempting to update the CP-BOOT ROMs.

For CP-BOOT ROM:

<a>	to install CP-BOOT ROM only
<y>	to start installation

Follow screen directions until the menu returns.

For IOP ROM:

<a>	to install IOP ROM only
<y>	to start installation

Follow screen directions until the menu returns.

- 4 Remove the disk from the CMDU or IOP/CMDU.
- 5 Quit and reload the system. From the main menu, select

<q>	to quit
<y>	to confirm quit
<a>	to reboot the system
- 6 Repeat this procedure for the second core.

Installing software only

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

Choose the following options to install the software and update the flash ROM for your system.

- 1 Beginning with the main menu, select the following:

<c>	to install software
<y>	to confirm that you want to install all the components
<a>	to start the upgrade

Follow the screen directions requiring disk insertion. A number of disks will be requested. Following the software installation, quit and reboot the system.

- 2 From the menu select the following options:

<code><c></code>	to install software on the flash ROMs
<code><y></code>	to begin the installation
- 3 Press `<CR>` to return to the main menu.
- 4 Upon successful installation of software on the flash ROMs, choose option `<e>` from the main menu to update the CP-BOOT ROM.
- 5 Repeat this procedure for the second core.

Installing database only

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

The system database can be installed from the B1 database disk or from an existing backup disk. Remove the "A" disk and insert the database disk now.

Note: This procedure pertains to database *installation* only. Database *transfer* from a previous system disk is discussed on page 257.

Enter the following commands to install the software, database and ROM requirements for your system.

- 1 From the main menu, select the following:

<code><d></code>	to install the database
<code><a></code>	to install the default database from the B1 disk
OR	
<code></code>	to install the database from an existing backup disk
<code><y></code>	to begin the installation

Follow the screen directions requiring disk insertion.

- 2 Press `<CR>` to return to the main menu.
- 3 Repeat this procedure for the second core.

Installing ROMs only

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

The CP-BOOT ROM and IOP ROM are installed individually. To be sure you install the required IOP ROM version, install it from the floppy disk.

CAUTION

If a previous attempt to install software on the CP flash ROMs was not successful, do not update the CP-BOOT ROMs; resolve any problem with CP flash ROM updating before attempting to update the CP-BOOT ROMs.

- 1 From the main menu select the following:

For CP-BOOT ROM:

<e>	to install CP-BOOT ROM only
<y>	to start installation
<a>	to confirm

For IOP ROM:

<f>	to install IOP ROM only
<y>	to start installation
	to install IOP ROM from floppy

- 2 Press <CR> to return to the main menu.

Updating flash ROM with CP software

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

The CP flash ROM is installed individually. The flash ROM is updated with system software from the hard disk.

- 1 From the main menu select the following:

For CP-BOOT ROM:

<g>	to update flash ROMs from the hard disk
<y>	to confirm installation

- 2 Press <CR> to return to the main menu.
- 3 Upon successful installation of software on the flash ROMs, choose option <e> to update the CP-BOOT ROM.
- 4 Repeat this procedure for the second core.

Transferring a database from a previous system

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

The option to transfer a database from a previous system type (not an Option 51C, 61C, 81, or 81C) is available under the database install menu (option <d> in the main menu):

- 1 Insert the B1 disk into the CMDU or IOP/CMDU at this time.
- 2 From the main menu, select the following:

<d>	to install the database
<c>	to transfer the previous system database
<a>	to transfer the database from the floppy to the hard drive
<y>	to begin the installation
<a>	to confirm the database conversion

Follow screen directions requesting additional disks.

- 3 Remove the disk from CMDU or IOP/CMDU.
- 4 Press <CR> to return to the main menu.

Quitting

Throughout the installation process, the option to quit is always available. When you choose to quit, the system will reload. Be sure there are no disks in the floppy disk drive when quitting.

- 1 Remove the disk from CMDU or IOP/CMDU.
- 2 Quit and reload the system. From the main menu, select
 - <q> to quit
 - <y> to confirm quit
 - <a> to reboot the system

NT9D19, NT9D10 and NT5D03 CP card installation tool reference

The following information is intended as general reference information for the Software Installation Tool for systems equipped with NT9D19, NT5D10 or NT5D03 CP cards. For specific installation procedures, use the procedures above.

Installing system software

System software is installed when you choose <a>, , or <c> on the terminal screen. Software is copied from each floppy disk, in sequence, and written to the hard disk drive in the CMDU or IOP/CMDU.

When you have confirmed the installation, the following screen appears:

```

      NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
      =  =  =  =  =  =  =  =  =  =  =  =  =  =  =  =  =  =  =  =  =  =
You have chosen to UPGRADE your system from

Release: <number> to Release <number>.

This will erase all old system files. Database files will NOT be erased. You may Continue with
Software installation or Quit now and leave your system unchanged.

Note: ERASED FILES CANNOT BE RECOVERED.

Please enter:

<CR> -->          <a> - Continue with Upgrade.
                  <q> - Quit.

Enter choice >
    
```

If you choose to continue with the software installation, the Software Installation Tool begins the upgrade. When required, the tool prompts for the next required disk. For a sample, see the following figure.

Enter choice > **a**

> Starting Software Install

> Upgrading from release <number> to release <number>

> Initialize volume "/p"

> Create Directories

> Create directory "/p/etc"

> Create directory "/p/hidir

> Copy from "f0/p/os/diskos" to "/p/os/diskos"

> Copy from "f0/p/disk.sys" to "/p/disk.sys"

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)

Please insert disk [2] into the floppy drive.

Please enter:

<CR> --> <a> - Disk [2] is now in the floppy drive.

Continue with installation.

<q> - Quit.

Enter Choice >

The tool responds in the same manner throughout the procedure. If the incorrect disk is inserted, or the disk is not inserted completely, a system message appears. Insert (or reinsert) the correct disk and press <CR> to continue with the upgrade.

After system software has been installed on the hard disk from floppy disks, you will be given the option to update the flash ROM. Choose option <a>. The system software will then be written to flash ROM:

CAUTION

Always choose option <a> to update flash ROM. If you do not update flash ROM, the new system software will not be written to flash ROM and the system will continue to run under the old system software.

Enter Choice>

- >Copy from "/f0/disk0009.dat" to "/p/install/disk0009.dat"
- >Append from "/f0/p/data/erlang1.msg" to "/p/data/erlang1.msg"
- >Copy from "/f0/p/data/erlang1.idx" to "/p/data/erlang1.idx"
- >Copy from "/f0/p/etc/debug" to "/p/etc/debug"
- >Copy from "/f0/p/etc/netstart" to "/p/etc/netstart"
- >Copy from "/f0/p/etc/nos1" to "/p/etc/nos1"
- >Copy from "/f0/p/etc/tools" to "/p/etc/tools"

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
= = = = =

You have chosen to Upgrade CP-software in card slot 14 from the context: xnnnnnn to the context: xnnnnnn.

This will replace old CP-software with the ROM image files:
"/p/os/flashos, /p/sl1/sl1res, /p/sl1/ovlres, /p/os/flashfs"

You may Continue with ROM upgrade or Quit now and leave ROM unchanged.

<CR> -> <a> - Continue with ROM Upgrade.
 <q> - Quit.

At this point in the installation, all previously installed system patches have been erased. Contact your technical support for information regarding any new patches that need to be inserted. Patch insertion must be done manually.

When you have successfully installed the components, the following message appears:

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version) _
_ _

Success, the Meridian 1 Software release: <number> was installed successfully on side <number>.

Diskettes 1 to x were read and all files were copied from floppy disk to the hard disk. CP-software was installed to flash ROM. If you chose to install Database, Install will ask you to insert disk x later on.

Please press <CR> when ready...

Continuing with the installation takes you either to the next phase in the installation (i.e. database installation, ROM upgrade, etc.), or to the main menu (if you choose to quit).

Installing the customer database

Database installation offers several choices. All these options are available through a display screen.

- Install Option 51C/61C/81 or 81C database from backup floppy disk
- Install a default database from the Installation Tool B1 disk
- Transfer the customer database from a previous system type (not an Option 51C, 61C, 81, or 81C) on 2 MB or 4 MB floppy disk
- Report the version and issue of an existing database on the hard disk drive
- Quit the installation process

CAUTION

Before upgrading the system database, be sure a backup of the previous (source) database is on hand. Should any problems arise, it may be necessary to return to the previous database.

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
 = = = = = = = = = = = = = = = = = =

You have chosen to do a Database Installation. You may:

- Install the CUSTOMER Database from a previous backup floppy.
- Install the DEFAULT Database from the installation floppy (diskette number x).
- Transfer previous system Database from floppy to the hard disk.
- Check the Database that currently exists on hard disk prior to the start of this installation.

Note: If installing the Database from a floppy disk, please insert the correct disk now.

Please enter:

```
<CR> -->      <a> - Install CUSTOMER Database.
                  Customer Database backup floppy is now in the drive.

                  <b> - Install DEFAULT Database.
                  Installation floppy disk [x] is now in the drive.

                  <c> - Transfer the previous system Database (DBMT).

                  <d> - Check the Database that exists on the hard disk.

                  <q> - Quit
```

Enter choice >

Choosing <a>, , or <c> will erase the source database files on the hard disk and replace them with the new database files. Option <d> checks the hard disk for an existing database file, and if it exists, reports the version and issue of the database. If a file is missing, a system message appears indicating the missing file. Refer to *X11 input/output guide* for message details.

If you choose option <a> and you are upgrading or installing software only (not changing system type; i.e. from an Option 61C to 81C), you will see this screen:

```
NT Meridian - 1  Software/Database/PEROM INSTALL Tool (Version)
== == == == == == == == == == == == == == == == == == ==
Enter Choice> a
>Starting database install
>CONFIG
>Copy from "/f0/config.rec" to "/u/db/config.rec"
>DATA
>Copy from "/f0/database.rec" to "/u/db/database.rec"
>HI
>Copy from "/f0/hi/cp.db" to "/u/db/hi/cp.db"
>Copy from "/f0/hi/hi.db" to "/u/db/hi/hi.db"
>Copy from "/f0/hi/ipb.db" to "/u/db/hi/ipb.db"
>Copy from "/f0/hi/iop.db" to "/u/db/hi/iop.db"
>Copy from "/f0/hi/cnib.db" to "/u/db/hi/cnib.db"
>Copy from "/f0/hi/simm.db" to "/u/db/hi/simm.db"
```

If you are changing machine types (i.e. from an Option 51C, 61C, 81, or 81C to an Option 51C, 61C, 81, or 81C), you will see the following screen. You will be asked to confirm the deleting of HI database files. These files will be replaced by new files. Enter <y> to confirm.

```

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)

```

Enter Choice> a

- >Starting database install
- >CONFIG
- >Copy from "/f0/config.rec" to "/u/db/config.rec"
- >DATA
- >Copy from "/f0/database.rec" to "/u/db/database.rec"
- >HI

An upgrade from machine type 1811 to 1611 has been detected.
The Hardware Infrastructure (HI) data base for the previous system (stored on the hard disk) needs to be erased.

- "YES" option: HI data base on the hard disk will be erased.
Default HI data base from new system will be used.
- "NO" option: HI data base from the previous system will be used.

You may delete the HI data base from the hard disk by choosing YES or Continue with Database Install by choosing NO.

Note: ERASED DATABASE FILES CANNOT BE RECOVERED.

Please enter:

- <CR> -> <y> - Yes, delete the HI data base files from the hard disk.
<n> - No, continue copying the previous Database to hard disk.

Enter Choice>

Installing the database from backup or install disk

Choosing option <a> or begins the database installation process. This replaces the customer database with a new database from either a backup or installation floppy. Option <a> requires the backup floppy disk; option requires the B1 installation disk.

The following screen appears:

```

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
_ _ _ _ _

```

You have chosen to install Database from the floppy drive onto the hard disk from Release: <number> to Release: <number>.

This will overwrite existing database files with new content. If the correct Database disk is not in the drive, please insert it now.

You may Continue with the Database install or Quit and leave your Database unchanged.

Note: ERASED DATABASE FILES CANNOT BE RECOVERED.

Please enter:

<CR> --> <a> - Continue with the Database Install.

 - Quit.

Enter Choice >

Transferring a database from a previous system type

Menu option <c> transfers a database from a previous system type (not an Option 51C, 61C, 81, or 81C). This menu option does not change the content of the database, only the file format.

You are now presented with two choices:

- transfer the database from floppy to hard disk
- display version and issue of the database on the disk in the floppy drive

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)

You are in the Database Media Transfer menu. This operation allows you to transfer from a previous system database on the floppy disk to the new system on the hard disk. Or you can check the version of the database on the floppy disk before you do the transferring .

Please enter:

<CR> -->

<a> - Transfer the database from floppy to hard disk.

 - Display the version and issue of database on floppy drive.

<q> - Quit

Enter Choice >

If you choose option , you will be prompted to insert the B1 disk.

```

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
== == == == == == == == == == == == == == == == == == ==

```

You have chosen to display the version and issue of the Database on the floppy disk. Please insert the source floppy disk (B1) in the floppy drive now. The installation tool automatically identifies 2MB or 4MB floppy type.

Please press <CR> when ready...

>Display Database's version and issue

* MERIDIAN - 1 DATABASE *

Version	1211
Issue	1819

Press <CR> when ready...

Choosing option <a> allows you to transfer a previous database to an Option 51C/61C/81 or 81C database. The disk can be either 2 MB or 4 MB capacity.

```

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
== == == == == == == == == == == == == == == == == == ==

```

You have chosen to transfer the Database from floppy onto the hard disk of side "X". This will erase the database on the hard disk. If you quit now, the database will be left unchanged. Please confirm before Install does the transferring.

If you would like to transfer the database, but the floppy disk B1 is not in the drive, please insert it now.

Please enter:

<CR> --> <a> - Yes, transfer the database.

<q> - Quit.

Enter Choice >

Continuing with the installation takes you either to the next phase in the installation (i.e., ROM upgrade, etc.), or to the main menu.

Installing IOP ROMs

Always choose this option whenever the software is upgraded. On dual CPU systems, ROMs should be upgraded on both CPUs.

```

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
== == == == == == == == == == == == == == == == == == ==

```

You have chosen to upgrade the IOP ROM in card slot xx from the release xx.xx to release xx.xx.

This will replace old IOP ROM with the ROM image files: "/p/os/ioprom".

You may Continue with ROM upgrade or Quit now and leave ROM unchanged.

Please enter:

<CR> -> <a> - Continue with IOP ROM Upgrade.

<q> - Quit.

Enter Choice >

Choose option <a> to upgrade the IOP ROM.

If a message displays indicating that the ROM installation failed, attempt to upgrade the ROMs again by choosing the option again.

Installing CP-BOOT ROMs

This option updates the CP-BOOTROM on the CP card. Always choose this option when installing new system software.

You are now given the choice to program the ROM or quit. Choose option <a> to update the ROM.

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version) ==

You have chosen to upgrade the CP-BOOT ROM in card slot xx from the context: xxxxxxxx to the context: xxxxxxxx.

This will replace old CP-BOOT ROM with the ROM image files: "/p/os/cprom".

You may Continue with ROM upgrade or Quit now and leave ROM unchanged.

Please enter:

<CR> -> <a> - Continue with CP-BOOT ROM Upgrade.

<q> - Quit.

Enter Choice >

Continuing will return you to the main menu.

Installing CP software

This option updates the CP flash ROM with CP software from the hard disk.

```
NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
== == == == == == == == == == == == == == == == == == == == == == ==
```

You have chosen to upgrade the CP-software in card slot xx from the context: xxxxxxxx to the context: xxxxxxxx.

This will replace old CP-software with the ROM image files: "/p/os/flashos, /p/sl1/sl1res, /p/sl1/ovlres, /p/os/flashfs".

You may Continue with ROM upgrade or Quit now and leave ROM unchanged.

Please enter:

<CR> -> <a> - Continue with ROM Upgrade.

<q> - Quit.

Enter Choice >

Quitting the Software Installation Tool

Throughout the installation process, the option to quit is always available. When you quit from one of the installation screens (software installation screen, ROM screen, or database installation screen), you are returned to the main menu. When you quit the Installation Tool from the main menu, the system reboots automatically. Be sure any floppy disks are removed from the floppy disk drive **before** you quit the tool and reboot the system.

When you choose Quit from one of the installation screens, the following menu appears.

```
NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
== == == == == == == == == == == == == == == == == == == == == == ==
```

You have chosen to Quit. Please confirm.

Please enter:

<CR> -> <y> - Yes, Quit.
 <n> - No, DO NOT Quit.

Enter Choice >

When you choose Quit from the main menu, you are prompted to choose whether to quit the Installation Tool, or return to the main menu.

```
NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
== == == == == == == == == == == == == == == == == == == == == == ==
```

You have chosen to Quit from Install. Now, you have the option to:

- Reboot the system. If you have any floppy disk in the drive, it will reboot from this floppy. If you take out the floppy disk, it will reboot from the hard disk.
- Continue loading from where you left off prior to install. If disk 1 is not in the drive now, please put disk 1 in the drive now.
- Go back to Install's Main Menu.

Please enter:

<CR> -> <a> - Reboot the system.
 - Continue loading.
 <m> - Go back to Main Menu.

Enter Choice >

The Tools menu

The Tools menu gives you two options: to set the time and date, or to partition the hard disk.

```

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
== == == == == == == == == == == == == == == == ==
  
```

TOOLS MENU

This is the Tools Menu for Install. You can select the tool that is appropriate. Please select one of the options below.

Please enter:

- <CR> ->
- <a> - To set the system date and time.
 - - To partition the hard disk.
 - <c> - To display the partition size of the hard disk.
 - <d> - To install CP software at a specific slot.
 - <m> - To go back to Main Menu.

Enter Choice >

Time and Date

The Tools menu provides you with a means to set the time and date. It will reset the time and date, if already configured.

Setting the time and date is done with the following menu. When asked to enter the time and date, enter it in the following format. A space or dash can be used to separate the items.

dd mm yy
hh mm ss
or
dd-mm-yyyy
hh-mm-ss

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version) _
_ _

You have selected the option to set the system date and time. This will change the internal clock of your system to a new date and time.

The system date and time are also used by Install to time-stamp the new files created.

Pressing the carriage-return at the prompt below will leave the system date and time unchanged.

Please enter the new date or time.

Current date is: Thursday 04 - 01 - 1993

Enter new date (dd mm yyyy)? 2 4 1993

Date is set to: Friday 04 - 02 - 1993

Current time is: 12:05:05

Enter new time (hh mm ss)? 13 05 05

Time is set to: 13:05:05

System Date and Time now is:

Friday 04 - 02 - 1993, 13:05:05

Hard disk partition

This tool is available for use by Northern Telecom support personnel only. A password is required to go further with that choice.

Display hard disk partition size

This tool allows you to view the size of the partition on the hard disk. The manufacturer and model number of the hard disk are also displayed.

Install CP software at specific slot

This tool is available for use by Northern Telecom support personnel only. A password is required to go further with that choice.

Installation on systems with NT6D66 CP cards

These are the exact steps used to perform the conversion required on systems that have NT6D66 CP cards installed. All the steps begin with the main menu. If more information is needed, refer to "NT6D66 CP card installation tool reference" on page 283.

The following are the recommended options to choose for certain situations.

- When upissuing software within the same release, adding new software packages, or going to a later X11 release, choose the default option <a> from the main menu to install software, CP-ROM and IOP-ROM.
- When upgrading to an Option 51C/61C/81 or 81C system, or for a new Option 51C/61C/81 or 81C installation, choose option from the main menu to install software, database, CP-ROM, and IOP-ROM.
- When a specific component is required, choose the following options from the main menu:
 - <c> for software only
 - <d> for database only
 - <e> for CP-ROM only
 - <f> for IOP-ROM only

Note: When installing new software, it is always recommended to upgrade the ROMs as well.

When the procedure is complete, the Software Installation Tool does not automatically restart. You will be prompted that the process is complete and you may choose another option if necessary. Quitting the process automatically restarts the system. Do *not* press the RST button on either side.

When upissuing software (choosing option <a>), install the software and ROMs on one core only. The second core requires IOP-ROM and CP-ROM installation only. Synchronizing the disks places the new software on both Cores.

Main menu

Before the Software Installation Tool is activated, verify that the system is in split mode (not applicable for option 51C) and that a terminal is connected to CPSI port J25 on the I/O panel (in the inactive Core for dual CPU systems). Option 51C systems will be taken out of service.

To activate the Software Installation Tool, insert disk A1 from the software package into the inactive CMDU or IOP/CMDU. Press the MAN RST button on the NT6D66 CP Card in the same Core.

Throughout the installation, the option to stop and return to the main menu is always available. The main menu shows all the available options.

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
= = = = = = = = = = = = = = = = = = = =

MAIN MENU

This tool will install or upgrade your Meridian - 1 System Software, Database and PE-ROM (both CP-ROM and IOP-ROM). You will be prompted throughout the installation and given the opportunity to Quit at any time.

Please enter:

- <CR>-->
- <a> - To install Software, CP-ROM, IOP-ROM.
 - - To install Software, Database, CP-ROM, IOP-ROM.
 - <c> - To install Software only.
 - <d> - To install Database only.
 - <e> - To install CP-ROM only.
 - < f> - To install IOP-ROM only.
 - <g> - To go to the Tools Menu.
 - <q> - Quit.

Enter choice >

Splitting the Cores

Use the following procedure to place the system in split mode and transfer call processing to Core 0.

Note: This procedure is not applicable to the option 51C.

- 1 If Core 1 is active, switch Cores:

STAT CPU	to get the status of the Cores
SCPU	to switch to Core 0 (if necessary)
****	to exit the program

- 2 In Core 0, set the NORM/MAINT faceplate switch on the CP card to MAINT.
- 3 In Core 1, set the ENB/DIS switch on all NT6D65 CNI cards to DIS.
- 4 In Core 1, set the NORM/MAINT faceplate switch on the CP card to MAINT.
- 5 Press the MAN RST button on the CP card in Core 1.

The system is now operating in split mode.

Installing software, database, and ROMs

Use this procedure when upgrading to an option 51C, 61C, 81, or 81C, or when installing a new option 51C, 61C, 81 or 81C system.

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

- 1 From the main menu, select the following:

	to install all components
<y>	to confirm that you want to install all the components
<a>	to start the upgrade

Follow the screen directions requiring disk insertion. A number of disks will be requested. When everything except the database has been installed, the database installation menu appears. The system database can be installed from the B1 database disk, or from an existing backup disk.

- 2 From the menu select the following:
 - <a> to install the default database from the B1 disk
 - OR
 - to install the database from an existing backup disk
 - <y> to begin the installation
- 3 Following the database installation, install the CP and IOP ROMs. From the menu select the following:

For CP ROM:

 - <a> to install CP ROM
 - <y> to start installation

Follow screen directions until main menu returns.

For IOP ROM:

 - <a> to install IOP ROM
 - <y> to start installation

Follow screen directions until main menu returns.
- 4 Remove the disk from the CMDU or IOP/CMDU.
- 5 Quit and reload the system. From the main menu, select
 - <q> to quit
 - <y> to confirm quit
 - <a> to reboot the system
- 6 Repeat this procedure for the second core.

Installing software and ROMs

Use this procedure when performing a software update, adding new software packages, or going to a later X11 release.

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

Enter the following commands to install the software and update ROMs for your system.

- 1 From the main menu, select the following:
 - <a> to install software, CP and IOP ROMs
 - <y> to confirm that you want to install all the components
 - <a> to start the upgrade
- 2 Follow the screen directions requiring disk insertion. A number of disks will be requested. Following the software installation, install the CP and IOP ROMs. From the menu select the following:

For CP ROM:

- <a> to install CP ROM
- <y> to start installation

Follow screen directions until main menu returns.

For IOP ROM:

- <a> to install IOP ROM
- <y> to start installation

Follow screen directions until main menu returns.

- 3 Remove the disk from the CMDU or IOP/CMDU.
- 4 Quit and reload the system. From the main menu, select
 - <q> to quit
 - <y> to confirm quit
 - <a> to reboot the system
- 5 Repeat this procedure for the second core.

Installing software only

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

Choose the following options to install the software.

- 1 Beginning with the main menu, select the following:
 - <c> to install software
 - <y> to confirm that you want to install all the components
 - <a> to start the upgrade

Follow the screen directions requiring disk insertion. A number of disks will be requested. Following the software installation, quit and reboot the system.

- 2 Press <CR> to return to the main menu.
- 3 Repeat this procedure for the second core.

Installing database only

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

The system database can be installed from the B1 database disk or from an existing backup disk. Remove the "A" disk and insert the database disk now.

Note: This pertains to database installation only. Database transfer from a previous system disk is discussed later in this chapter.

Enter the following commands to install the software, database and ROM requirements for your system.

- 1 From the main menu, select the following:

<d>	to install the default database
<a>	to install the database from the B1 disk
OR	
	to install the database from an existing backup disk
<y>	to begin the installation

Follow the screen directions requiring disk insertion. Following the database installation, quit and reboot the system.

- 2 Press <CR> to return to the main menu.
- 3 Repeat this procedure for the second core.

Installing ROMs only

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

The CP and IOP ROMs are installed individually. To be sure you install the required ROM version, install it from the floppy disk.

- 1 From the main menu select the following:
For CP ROM:

<e>	to install CP ROM only
<y>	to start installation
	to install CP ROM from floppy disk

Follow screen directions until main menu returns.

- For IOP ROM:
- | | |
|------|--------------------------------|
| <f> | to install IOP ROM only |
| <y> | to start installation |
| < b> | to install IOP ROM from floppy |

Follow screen directions requesting additional disks.

- 2 Press <CR> to return to the main menu.
- 3 Repeat this procedure for the second core.

Transferring a database from a previous system

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

Menu option <c> transfers a database from a previous system type (not an Option 51C, 61C, 81, or 81C). The B1 disk must be in the CMDU or IOP/CMDU at this time.

- 1 From the main menu, select the following:

<d>	to install the database
<c>	to transfer the previous system database
<a>	to transfer the database from the floppy to the hard drive
<y>	to begin the installation
<a>	to confirm the database conversion

Follow screen directions requesting additional disks.

- 2 Remove the disk from CMDU or IOP/CMDU.
- 3 Press <CR> to return to the main menu.

Quitting

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

Throughout the installation process, the option to quit is always available. When you choose to quit, the system will reload. Be sure there are no disks in the floppy disk drive when quitting.

- 1 Remove the disk from CMDU or IOP/CMDU.
- 2 Quit and reload the system. From the main menu, select
 - <q> to quit
 - <y> to confirm quit
 - <a> to reboot the system

NT6D66 CP card installation tool reference

The following information is intended as general reference information for the Software Installation Tool for systems equipped with NT6D66 CP cards. For specific installation procedures, use the procedures above.

Installing system software

System software is installed when you choose <a>, , or <c> from the main menu. Software is copied from each floppy disk, in sequence, and written to the hard disk drive in the CMDU or IOP/CMDU.

When you have confirmed the installation, the following screen appears:

```
NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
== == == == == == == == == == == == == == == == == == ==
```

You have chosen to UPGRADE your system from

Release: <number> to Release <number>.

This will erase all old system files. Database files will NOT be erased. You may Continue with Software installation or Quit now and leave your system unchanged.

Note: ERASED FILES CANNOT BE RECOVERED.

Please enter:

<CR> --> <a> - Continue with Upgrade.
 - Quit.

Enter choice >

If you choose to continue with the software installation, the Software Installation Tool begins the upgrade. When required, the tool prompts for the next required disk. For a sample, see the following figure.

```
Enter choice > a
```

```
> Starting Software Install
> Upgrading from release <number> to release <number>
> Initialize volume "/p"
> Create Directories
> Create directory "/p/etc"
```


> Create directory "/p/hidir

> Copy from "f0/p/os/diskos" to "/p/os/diskos"

> Copy from "f0/p/disk.sys" to "/p/disk.sys"

```

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
== == == == == == == == == == == == == == == == == ==

```

Please insert disk [2] into the floppy drive.

Please enter:

<CR> --> <a> - Disk [2] is now in the floppy drive.

Continue with installation.

<q> - Quit.

Enter Choice >

The tool responds in the same manner throughout the procedure. If the incorrect disk is inserted, or the disk is not inserted completely, a system message appears. Insert (or reinsert) the correct disk and press <CR> to continue with the upgrade.

At this point in the installation, all previously installed system patches have been erased. Contact your technical support for information regarding any new patches that need to be inserted. Patch insertion must be done manually.

When you have successfully installed the components, the following message appears:

```

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
== == == == == == == == == == == == == == == == == ==

```

Success, the Meridian 1 Software release: <number> was installed successfully on side <number>.

Diskette 1 to x were read and all files were copied from floppy disk to the hard disk. If you chose to install Database, Install will ask you to insert disk x later on.

Please press <CR> when ready...

Continuing with the installation takes you either to the next phase in the installation (i.e. database installation, ROM upgrade, etc.), or to the main menu (if you choose to quit).

Installing the customer database

Database installation offers several choices. All these options are available through a display screen.

- Install Option 51C/61C/81 or 81C database from backup floppy disk
- Install a default database from the Installation Tool B1 disk
- Transfer the customer database from a previous system type (not an Option 51C, 61C, 81, or 81C) on 2 MB or 4 MB floppy disk
- Report the version and issue of an existing database on the hard disk drive
- Quit the installation process

CAUTION

Before upgrading the system database, be sure a backup of the previous (source) database is on hand. Should any problems arise, it may be necessary to return to the previous database.

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
= = = = =

You have chosen to do a Database Installation. You may:

- Install the CUSTOMER Database from a previous backup floppy.
- Install the DEFAULT Database from the installation floppy (diskette number x).
- Transfer previous system Database from floppy to the hard disk.
- Check the Database that currently exists on hard disk prior to the start of this installation.

Note: If installing the Database from a floppy disk, please insert the correct disk now.

Please enter:

- <CR> -->
- <a> - Install CUSTOMER Database.
Customer Database backup floppy is now in the drive.
 - - Install DEFAULT Database.
Installation floppy disk [x] is now in the drive.
 - <c> - Transfer the previous system Database (DBMT).
 - <d> - Check the Database that exists on the hard disk.
 - <q> - Quit

Enter choice >

Choosing <a>, , or <c> will erase the source database files on the hard disk and replace them with the new database files. Option <d> checks the hard disk for an existing database file, and if it exists, reports the version and issue of the database. If a file is missing, a system message appears indicating the missing file. Refer to *X11 input/output guide* for message details.

If you choose option <a> and you are upgrading or installing software only (not changing system type; i.e. from an Option 61C to 81C), you will see this screen:

```
NT Meridian - 1  Software/Database/PEROM INSTALL Tool (Version) _
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
```

```
Enter Choice> a
>Starting database install
>CONFIG
>Copy from "/f0/config.rec" to "/u/db/config.rec"
>DATA
>Copy from "/f0/database.rec" to "/u/db/database.rec"
>HI
>Copy from "/f0/hi/cp.db" to "/u/db/hi/cp.db"
>Copy from "/f0/hi/hi.db" to "/u/db/hi/hi.db"
>Copy from "/f0/hi/ipb.db" to "/u/db/hi/ipb.db"
>Copy from "/f0/hi/iop.db" to "/u/db/hi/iop.db"
>Copy from "/f0/hi/cnib.db" to "/u/db/hi/cnib.db"
>Copy from "/f0/hi/simm.db" to "/u/db/hi/simm.db"
```

If you are changing machine types (i.e. from an Option 51C, 61C, 81, or 81C to an Option 51C, 61C, 81, or 81C), you will see the following screen. You will be asked to confirm the deleting of HI database files. These files will be replaced by new files. Enter <y> to confirm.

```

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
== == == == == == == == == == == == == == == == == == ==

```

Enter Choice> a

>Starting database install

>CONFIG

>Copy from "/f0/config.rec" to "/u/db/config.rec"

>DATA

>Copy from "/f0/database.rec" to "/u/db/database.rec"

>HI

An upgrade from machine type 1811 to 1611 has been detected.
The Hardware Infrastructure (HI) data base for the previous
system (stored on the hard disk) needs to be erased.

- "YES" option: HI data base on the hard disk will be erased.
Default HI data base from new system will be
used.
- "NO" option: HI data base from the previous system will be
used.

You may delete the HI data base from the hard disk by choosing
YES or Continue with Database Install by choosing NO.

Note: ERASED DATABASE FILES CANNOT BE RECOVERED.

Please enter:

<CR> -> <y> - Yes, delete the HI data base files from the hard disk.
<n> - No, continue copying the previous Database to hard disk.

Enter Choice>

Installing the database from backup or install disk

Choosing option <a> or begins the database installation process. This replaces the customer database with a new database from either a backup or installation floppy. Option <a> requires the backup floppy disk; option requires the B1 installation disk.

The following screen appears:

```
NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version) _  
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
```

You have chosen to install Database from the floppy drive onto the hard disk from Release: <number> to Release: <number>.

This will overwrite existing database files with new content. If the correct Database disk is not in the drive, please insert it now.

You may Continue with the Database install or Quit and leave your Database unchanged.

Note: ERASED DATABASE FILES CANNOT BE RECOVERED.

Please enter:

<CR> --> <a> - Continue with the Database Install.

 - Quit.

Enter Choice >

Transferring a database from a previous system type

Menu option <c> transfers a database from a previous system type (not an Option 51C, 61C, 81, or 81C). This menu option does not change the content of the database, only the file format.

You are now presented with two choices:

- transfer the database from floppy to hard disk
- display version and issue of the database on the disk in the floppy drive

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)

You are in the Database Media Transfer menu. This operation allows you to transfer from a previous system database on the floppy disk to the new system on the hard disk. Or you can check the version of the database on the floppy disk before you do the transferring.

Please enter:

<CR> -->

<a> - Transfer the database from floppy to hard disk.

 - Display the version and issue of database on floppy drive.

<q> - Quit

Enter Choice >

If you choose option , you will be prompted to insert the B1 disk.

```

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
== == == == == == == == == == == == == == == == == ==

```

You have chosen to display the version and issue of the Database on the floppy disk. Please insert the source floppy disk (B1) in the floppy drive now. The installation tool automatically identifies 2MB or 4MB floppy type.

Please press <CR> when ready...

>Display Database's version and issue

* MERIDIAN - 1 DATABASE *

Version	1211
Issue	1819

Press <CR> when ready...

Choosing option <a> allows you to transfer a previous database to an Option 51C/61C/81 or 81C database. The disk can be either 2 MB or 4 MB capacity.

```

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
== == == == == == == == == == == == == == == == == ==

```

You have chosen to transfer the Database from floppy onto the hard disk of side 0. This will erase the database on the hard disk. If you quit now, the database will be left unchanged. Please confirm before Install does the transferring.

If you would like to transfer the database, but the floppy disk B1 is not in the drive, please insert it now.

Please enter:

<CR> --> <a> - Yes, transfer the database.

<q> - Quit.

Enter Choice >

Continuing with the installation takes you either to the next phase in the installation (i.e., ROM upgrade, etc.), or to the main menu.

Installing IOP ROMs

Always choose this option whenever the software is upgraded. On dual CPU systems, ROMs should be upgraded on both CPUs.

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
== ==

You have chosen to install IOP-ROM. However, there are two sources the IOP-ROM can be installed from:

- Hard disk. ROM image file from the hard disk will be installed
- Floppy disk. ROM image file from the floppy disk will be installed

Please make a selection of which source of the ROM image file you would like to install.

Please enter:

<a> - Install IOP-ROM from the hard disk (Current rel. iss: xx.xx).

 - Install IOP-ROM from the floppy disk.

<q> - Quit.

Enter Choice >

Choose option <a> (upgrade the ROMs from the hard disk) if you have just installed new system software.

Choose option (upgrade the ROMs from floppy disk) if the software was not recently installed, or the ROM upgrade is being done on the second CPU following a parallel reload.

If a message displays indicating that the ROM installation failed, attempt to upgrade the ROMs again by choosing the option again.

Installing CP ROMs

It is recommended that the ROM information be upgraded whenever the software is upgraded. On dual CPU systems, ROMs should be upgraded on both CPUs.

The CP ROM menu is shown here; the IOP ROM menu is similar.

```
NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
== == == == == == == == == == == == == == == == == == ==
```

You have chosen to install CP-ROM. However, there are two sources the CP-ROM can be installed from:

- Hard disk. ROM image file from the hard disk will be installed
- Floppy disk. ROM image file from the floppy disk will be installed

Please make a selection of which source of the ROM image file you would like to install.

Please enter:

<a> - Install CP-ROM from the hard disk (context xxxxxxxx).

 - Install CP-ROM from the floppy disk.

<q> - Quit.

Enter Choice >

Choose option <a> (upgrade the ROMs from the hard disk) if you have just installed new system software.

Choose option (upgrade the ROMs from floppy disk) if the software was not recently installed, or the ROM upgrade is being done on the second CPU following a parallel reload.

If a message displays indicating that the ROM installation failed, attempt to upgrade the ROMs again by choosing the option again.

Note: X11 Release 21 changed the CP ROM version format from "rel.iss: xx.xx (e.g., 4.05) to software release/issue or context xxxxxxxx (e.g., x112116).

Quitting the Software Installation Tool

Throughout the installation process, the option to quit is always available. When you quit from one of the installation screens (software installation screen, ROM screen, or database installation screen), you are returned to the main menu. When you quit the Installation Tool from the main menu, the system reboots automatically. Be sure any floppy disks are removed from the floppy disk drive **before** you quit the tool and reboot the system.

When you choose Quit from one of the installation screens, the following menu appears.

```

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
= = = = =
  
```

You have chosen to Quit. Please confirm.

Please enter:

```

<CR> ->      <y> - Yes, Quit.
               <n> - No, DO NOT Quit.
  
```

Enter Choice >

When you choose Quit from the main menu, you are prompted to choose whether to quit the Installation Tool, or return to the main menu.

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)

You have chosen to Quit from Install. Now, you have the option to:

- Reboot the system. If you have any floppy disk in the drive, it will reboot from this floppy. If you take out the floppy disk, it will reboot from the hard disk.
- Continue loading from where you left off prior to install. If disk 1 is not in the drive now, please put disk 1 in the drive now.
- Go back to Install's Main Menu.

Please enter:

- <a> - Reboot the system.
- - Continue loading.
- <m> - Go back to Main Menu.

Enter Choice >

The Tools menu

The Tools menu gives you two options: to set the time and date, or to partition the hard disk.

```

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version)
=====
                                TOOLS MENU

This is the Tools Menu for Install. You can select the tool that is appropriate. Please select one
of the options below.

Please enter:

<CR> ->      <a> - To set the system date and time.
               <b> - To partition the hard disk.
               <c> - To display the partition size of the hard disk.
               <m> - To go back to Main Menu.

Enter Choice >
    
```

Time and Date

The Tools menu provides you with a means to set the time and date. It will reset the time and date, if already configured.

Setting the time and date is done with the following menu. When asked to enter the time and date, enter it in the following format. A space or dash can be used to separate the items.

dd mm yyy
hh mm ss
or
dd-mm-yyyy
hh-mm-ss

NT Meridian - 1 Software/Database/PEROM INSTALL Tool (Version) _
_ _

You have selected the option to set the system date and time. This will change the internal clock of your system to a new date and time.

The system date and time are also used by Install to time-stamp the new files created.

Pressing the carriage-return at the prompt below will leave the system date and time unchanged.

Please enter the new date or time.

Current date is: Saturday 04 - 01 - 1995

Enter new date (dd mm yyyy)? 2 4 1995

Date is set to: Sunday 04 - 02 - 1995

Current time is: 12:05:05

Enter new time (hh mm ss)? 13 05 05

Time is set to: 13:05:05

System Date and Time now is:

Sunday 04 - 02 - 1995, 13:05:05

Hard disk partition

The disk partition tool is available for use by Northern Telecom support personnel only. A password is required to go further with that choice.

Display hard disk partition size

This tool allows you to view the size of the partition on the hard disk. The manufacturer and model number of the hard disk are also displayed.

Procedure 12: Postconversion procedure

This procedure verifies that the conversion process was successful, and system data converted completely. This is the last part of the total conversion procedure. Perform these steps **after** you have completed all other procedures for your system.

The site data should be printed before and after conversion (see Table 28). If the data has changed, make the necessary updates on the **Target** release, and datadump to the new system media. You must print out the items marked with an asterisk (*) to be sure everything converted properly. All other items on Table 28 are provided if you want to print them.

Check the General Release Bulletin (GRB), and the Conversion notes (earlier in this document) to verify any database updates that need to be made as a result of conversion. Be sure to verify all SYSxxx messages that may appear during the conversion process. These messages may indicate some database updates are required.

CAUTION

Test call processing thoroughly. This may include more testing than is described in this procedure, depending on system configuration. This procedure is intended to show some of the basic tests performed to complete the conversion process.

Note: When parallel reload is complete, the attendant consoles will be in Night mode. If you are performing these procedures during the day, contact the attendant. If these procedures are taking place during the evening, you may not want to perform these call processing steps.

Postconversion steps

- 1 Print system data listed in Table 28, "Print site data (Part 1 of 2)," on page 306. Verify that all information matches the printouts created before conversions. Make changes if necessary.
- 2 From any unrestricted telephone, dial the access code for an outside line (usually 9), and dial the listed Directory Number (DN) for the customer. Verify that the correct Incoming Call Indicator (ICI) lights at the attendant console.
- 3 If the customer is equipped with more than one console, transfer the call to another console.
- 4 Extend the call to a telephone, and release the call from the console.
- 5 From the called telephone, transfer the call back to the attendant.
- 6 Answer and release the call.
- 7 From any telephone dial the DN for the attendant. Verify that the correct ICI lights at the console, then release the call.
- 8 Busy-out one trunk group using a Trunk Group Busy (TGB) key on the console.
- 9 From any telephone with TGAR 0-7, dial the access code of the busied-out trunk group, to verify that the call is intercepted to the console and receives either overflow tone or a recorded announcement.
- 10 Restore the trunk group to the in-service state using the Trunk Group Busy (TGB) key on the console.
- 11 During the conversion procedure the Central Office may have busied-out the DID trunks. If DID trunks are equipped, from any unrestricted telephone, dial the access code for an outside line, and dial a DID number into the system.
- 12 If a private network is used, from any unrestricted telephone, dial the network access code and place a CDP, ESN, BARS/NARS, or ISDN call as applicable to your system.

For system options 51C, 61C, 81, and 81C, go to step 22. System options 21, 51, 61, 71, ST, NT, RT, and XT, use steps 13 through 21.

- 13 If an MDU or SMDU is present, the **Target** software and converted data must be restored to the hard drive. If you are using the three-disk configuration, you will be prompted to insert the A2 disk. Refer to "Procedure 5: Using a three-disk or four-disk configuration" on page 93 for additional detail.

LD 43

RES

Restore software and system data to hard drive
Output reads as follows:

RESTORING DISK A1

DISK A1 RESTORED INSERT DISK A2

You must insert disk A2 before the A1 countdown is complete.

RESTORING DISK B1

RESTORE COMPLETE TOTAL DISKS = 2 (or 3)

- 14 If Restore is successful, disable and remove the QPC584 MSI or NT9D34 EMSI card from CPU 1 and:
 - for QPC584 cards, set position 4 on switch 3 (SW3-4) to ON
 - for NT9D34 cards, set position 4 on switch 2 (SW2-4) to ON

Repeat for CPU 0.

- 15 Enter ******** to exit the overlay.
- 16 Type **ENLT**. This software enables the QPC584 MSI, NT9D34 EMSI, or QPC742 FDI card.
- 17 Load LD 35 to test and switch CPUs.

LD 35

TCPU

Test CPUs.

SCPU

Switch CPUs.

To abort overlay.

- 18 Perform a data dump to two additional copies of the **Target** system media. Put copy 2 of the A1 and B1 disks into the drives, and load LD 43. If an MDU or SMDU is equipped, use the Backup command. If an FDU is equipped, use the datadump command. Repeat for copy 3 of A1 and B1.

LD 43

BKO Back up with an MDU or SMDU.
or
EDD Back up with an FDU.

- 19 If not done previously, set the time and date. Note that if Call Detail Recording (CDR) is used, system message ERR225 will appear. This is normal.

LD 02

STAD dd mm yyyy hh mm ss

dd = day (for example, 05 for the fifth)
mm = month (for example, 09 for September)
yyyy = year (last 2 or all four digits, for example, 92 or 1992)
hh = hour (in 24-hour time, for example, 13:00 for 1:00 pm)
mm = minute (for example, 25)
ss = seconds (for example, 00)

- 20 If you have auxiliary processors working with your system, be sure they are powered up. Be sure the Application Module Links (AML) are up. DCH and AML messages may indicate problems during the conversion. Investigate any of these messages.
- 21 Keep one copy of the **Source** software, as it was backed up in the pre-conversion procedure, in case it becomes necessary to reconvert. After the **Target** software has been running well for a few weeks, return your original software to Northern Telecom through your distribution channel.

For option 51C, 61C, 81, and 81C systems only.

- 22 Load LD 135 to test and switch CPUs. (Omit this step for option 51C.)

LD 135

TEST CPU

Test CPU.

SCPU

Switch CPUs.

To abort overlay.

- 23** Load LD 137 to get the status of the CMDUs and IOPs.

LD 137

STAT

Get the status of both CMDUs and IOPs.
To abort overlay.

- 24** Load LD 43 to back up the other set of B1 disks. Insert the B1 disk in the active CMDU.

LD 43

BKO Back up to the backup disks and the active CMDU.

- 25** If not done previously, set the time and date. Note that if Call Detail Recording (CDR) is used, system message ERR225 will appear. This is normal.

LD 02

STAD dd mm yyyy hh mm ss

dd = day (for example, 05 for the fifth)

mm = month (for example, 09 for September)

yyyy = year (last 2 or all four digits, for example, 92 or 1992)

hh = hour (in 24-hour time, for example, 13:00 for 1:00 pm)

mm = minute (for example, 25)

ss = seconds (for example, 00)

- 26** If you have auxiliary processors working with your system, be sure they are powered up. Be sure the Application Module Links (AML) are up. DCH and AML messages may indicate problems during the conversion. Investigate any of these messages.
- 27** Keep one copy of the **Source** software, as it was backed up in the pre-conversion procedure, in case it becomes necessary to reconvert. After the **Target** software has been running well for a few weeks, return your original software to Northern Telecom through your distribution channel.

Items marked with asterisks (*) are required printout for conversion. Other items are recommended for a total system status.

Table 28
Print site data (Part 1 of 2)

Site data	Print command
Terminal blocks for all TNs	LD 20 REQ PRT TYPE TNB CUST <cr>
Directory Numbers	LD 20 (LD 22 prior to Release 16) REQ PRT TYPE DNB CUST <cr>
Attendant Console data block for all customers	LD 20 REQ PRT TYPE ATT, 2250 CUST <cr>
*Customer data block for all customers	LD 21 REQ PRT TYPE CDB CUST <cr>
Route data block for all customers	LD 21 REQ PRT TYPE RDB CUST Customer number ROUT <cr> ACOD <cr>
*Configuration Record	LD 22 REQ PRT TYPE CFN
*Software Packages	LD 22 REQ PRT TYPE PKG

Table 28
Print site data (Part 2 of 2)

Site data	Print command
* Software Issue, ROM and tape ID	LD 22 REQ ISS REQ ROM REQ TID
* Peripheral software versions	LD 22 REQ PRT TYPE PSWV
ACD data block for all customers	LD 23 REQ PRT TYPE ACD CUST Customer Number ACDN ACD DN (or <CR>)
Superloop card IDs and software version (peripheral controller, superloop network and controller cards)	LD 32 IDC loop
Multi-purpose ISDN Signaling Processor (MISP) card	LD 27 REQ PRT TYPE MISP LOOP loop number (0–158) APPL <cr> PH <cr>
DTI/PRI data block for all customers	LD 73 REQ PRT TYPE DDB
Note: Items marked with asterisks (*) are required printout for conversion. Other items are recommended for a total system status.	

Procedure 13: Upgrading to a new Call Processor card

CAUTION

Personnel performing this upgrade do so at their own risk. Personnel should have spare CP cards on hand or risk installation delay and/or system down time. Northern Telecom assumes no responsibility for any damage incurred, system down time, or loss due to damage or down time.

This section contains procedures for performing CP card upgrades on Options 51C, 61C, 81, or 81C systems running X11 release 24 or later software.

Note: The procedures in the section can be used for NT9D19, NT5D10, and NT5D03 CP card memory configurations.

Note: There should be an SDI TTY connection at J30, which should remain connected at all times to monitor system status.

Upgrading to a new CP card in Options 61C, 81, or 81C

Use the following instructions if you are converting a system to release 24 and are installing NT9D19, NT5D10 or NT5D03 CP cards.

Installing a new CP card in an Option 61C, 81, or 81C consists of:

- splitting the CPUs
- installing a new CP card in Core 1
- upgrading the system software and CP ROMs on Core 1
- swapping CPUs
- installing a new CP card in Core 0
- upgrading the system software and CP ROMs on Core 0
- synchronizing the hard disks

Performing a data dump

Before starting the upgrade, make a backup copy of the customer database on 2MB diskettes using the data dump routine:

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 When “DATADUMP COMPLETE” and “DATABASE BACKUP COMPLETE” appear on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Splitting the cores

- 1 Verify that the disk drives are synchronized:

LD 137 to load the program
STAT to get the status of the disk drives

If the disks are synchronized, proceed with step 2. If they are not synchronized, execute the SYNC command:

SYNC to synchronize the drives
******** to exit the program

- 2 Verify that clock controller 0 is active. If it is not, switch to clock controller 0:

LD 60 to load the program
SSCK 0 to get the status of clock controller 0
SWCK to switch to clock controller 0 (if necessary)
******** to exit the program

- 3 Verify that Core 0 is the active Core:

LD 135 to load the program
STAT CPU to check CPU status
TEST CPU to test the CPU

If Core 0 is active, proceed with step 5. If Core 0 is not the active CPU, swap Cores and verify again:

SCPU to swap CPUs
STAT CPU to check CPU status

- 4 Verify that CMDU 0 is active. You may need to switch CMDUs.

LD 137
STAT Get the status of IODU/C
SWAP Switch IODU/Cs (if necessary).

- 5 Set the MAINT/NORM switch on the CP card in Core 0 to MAINT.
- 6 Set the ENB/DIS switch on all CNI cards in Core 1 to DIS.

- 7 Perform the following three steps in uninterrupted sequence:
 - press and hold the MAN RST button on the CP card in Core 1
 - set the MAINT/NORM switch on the CP card in Core 1 to MAINT
 - release the MAN RST button

Upgrading Core 1

At this time you will install the new CP card and X11 system software on Core 1 if it is not already installed on the hard drive.

- 1 Connect a terminal to the CPSI port in Core 1 to J25 of the I/O panel at the back of the core. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.
 - 7 data bits
 - 1 stop bit
 - Space parity
 - Full duplex
 - XON protocol
- 2 Disengage the lock latches and remove the CP card from Core 1.
- 3 Insert the CP Install Program diskette which corresponds to the CP card to which you are upgrading into IODU/C 1 (68030, 68040, 68060 or 68060E).
- 4 Install the CD-ROM disk into the CD-ROM drive on the IODU/C in Core 1. To install the CD-ROM:
 - press the button on the CD-ROM drive to open the CD-ROM disk holder
 - place the CD-ROM disk into the holder with the disk label showing
 - press the button again to close the CD-ROM disk holder (don't push the holder in by hand)
- 5 Verify that the MAINT/NORM switch on the new NT9D19, NT5D10 or NT5D03 CP card is set to MAINT.

- 6 Insert the new CP card in the same slot in Core 1 and secure the lock latches.

A sysload will begin (cold start). Wait for the Main Menu to appear on the terminal before proceeding.
- 7 Press <CR> to continue.
- 8 Log into the system and enter the time and date, when prompted.
- 9 Initiate the database installation by selecting the following command from the menu:

 <u> to Install menu
- 10 Remove the CP Install Program diskette and insert the Keycode diskette, when prompted.

 <a> to continue with keycode validation
 <y> to confirm that the keycode matches the CD-ROM release
- 11 When the Install Menu is displayed, select the following options in sequence when you are prompted to do so
 <a> to install software, CP-BOOTROM, and IOP-ROM
 <a> to verify that the CD-ROM is now in drive
 The Installation Status Summary screen appears that lists the options to be installed.
 <y> Yes, start the installation
 <a> continue with upgrade
 When the ROM installation screen appears, select the following prompts in sequence:
 <a> to install CP-ROM from hard disk
 <a> to continue with ROM upgrade
 When all files are copied from the CD-ROM to hard disk, press <CR> to continue.
 <a> to install the IOP-ROM from hard disk
 <y> Yes, start installation
 <a> to continue with ROM upgrade
 The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, CP-BOOTROM, and IOP-ROM were installed.
 <cr> press return to return to the Install Menu.
 <q> to quit (remove any diskettes from the floppy drive)

- <y> Yes, to confirm quit
<a> to reboot the system

The system will automatically perform a sysload during which several messages will appear on the system terminal. Wait for "DONE" and then "INI" messages to be displayed before continuing.

Note: SYS4695 is not an error message. This message is cleared when you perform a data dump.

- 12 Set the ENB/DIS switches on all CNI cards in Core 1 to ENB.

CAUTION

Disabling CNI cards in Core 0 will momentarily interrupt call processing. Calls established or in process will be dropped. Call processing will resume after the "SYSTEM INI" messages appear on the system terminal (approximately 1 minute).

- 13 Perform the following three steps in uninterrupted sequence:

- set the DIS/ENB faceplate switch on the IODU/C card in Core 0 to DIS
- set the ENB/DIS switch on all CNI cards in Core 0 to DIS
- press and release the MAN INT button on the CP card in Core 1

After the system initialization has finished (INI messages are no longer displayed on the system terminal), check for dial tone on a telephone set.

- 14 Following a successful dial tone test, perform the following basic sanity tests:

- Make sure calls can be placed.
- Check for error messages, line noise, chatter, or other problems. Track sources and resolve problems as necessary.

Upgrading Core 0

Once the CP card in Core 1 is upgraded, upgrade the CP card in Core 0 and install system software:

- 1 Connect a terminal to the CPSI port in Core 0 to J25 of the I/O panel at the back of the core. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.
 - 7 data bits
 - 1 stop bit
 - Space parity
 - Full duplex
 - XON protocol
- 2 Verify that the MAINT/NORM switch on the CP card in Core 0 is set to MAINT.
- 3 Verify that the ENB/DIS switches on all CNI cards in Core 0 are set to DIS.
- 4 Disengage the lock latches and remove the CP card from Core 0.
- 5 Insert the Install diskette that corresponds with the CP card you will be installing into IODU/C 0.
- 6 Verify that the MAINT/NORM switch on the new NT9D19, NT5D10 or NT5D03 CP card is set to MAINT.
- 7 Insert the new CP card in the same slot in Core 0 and secure the lock latches.

The system will perform a sysload and load the IODU/C Software Installation Tool.

- 8 When the NT Logo Screen appears on the terminal, the Software Installation Tool has loaded. Press **<CR>** to go to the Install Main Menu.

- 9 Set the system date and time. When prompted to enter the time and date, enter it in the following format. A space or dash can be used to separate the items.

dd mm yyyy
hh mm ss
or
dd-mm-yyyy
hh-mm-ss

- 10 At the Main menu select <u> to go to the Install menu.
- 11 Insert the Keycode diskette when prompted and select <a> to continue with the keycode validation.

Once the keycode is validated against the Security Device, the Install menu is displayed.

- 12 When the Install menu appears, select the following options in sequence when you are prompted to do so:

<o>	to copy system software from Core 1 to Core 0.
<y>	to start installation
<a>	to continue with upgrade

- 13 At the Install menu, select the following options to install CP-BOOTROM:

<e>	to install CP-BOOTROM
<y>	to start the upgrade
<a>	to upgrade CP-BOOTROM from the hard disk drive

- 14 At the Install menu, select the following options to install IOP-ROM:

<f>	to install IOP-ROM
<y>	to start the upgrade
<a>	to upgrade IOP-ROM from the hard disk drive

- 15 Remove the diskette from IODU/C 0.

- 16** Select the following options to quit and reload the system:

<q>	to quit
<y>	to confirm quit
<a>	to reboot the system

The system will automatically perform a sysload and system initialization during which several messages will appear on the system terminal. Wait until initialization has finished (INI messages are no longer displayed on the system terminal) before continuing.

- 17** In Core 0, enable the NT6D65 CNI cards by setting the ENB/DIS faceplate switches to ENB.
- 18** Connect a terminal to the CPSI port in Core 1 to J25 of the I/O panel in the back of the core.
- 19** In Core 0, perform the following steps in uninterrupted sequence:
- press and release the MAN RST button
 - when SYS700 messages appear on CP 0 LCD display, **set the MAINT/NORM switch to NORM.**

Within 60 seconds, the LCD will display the following messages, confirming the process.

RUNNING ROM OS ENTERING CP VOTE

An “HWI534” message from the CPSI or SDI port indicates the start of memory synchronization. Within 10 minutes, an HWI533 message on Core 1 CPSI or SDI TTY indicates the memory synchronization is taking place. Wait until the memory synchronization is complete before continuing.

- 20** Set the MAINT/NORM switch on the CP card in Core 1 to NORM.
- 21** Synchronize the disk drives:
- | | |
|---------------|--|
| LD 137 | to load the overlay |
| STAT | to get the status of both CMDUs, IOPs and redundancy |
| SYNC | to synchronize the disk drives |

TEST CMDU Performs hard and floppy disk test.
******** to exit the program

Completing the upgrade

To complete the upgrade, verify CPU and CNI status and perform a data dump.

- 1 Verify CPU redundancy and CNI function:

LD 135 to load the overlay
STAT CPU to check the status of the CPU
STAT CNI to verify function of the CNIs
TEST CPU to test the CPU
SCPU switch CPUs
STAT CPU to check the status of the CPU
STAT CNI to verify function of the CNIs
TEST CPU to test the CPU
SCPU switch to CPUs
******** to exit the program

Backup the customer database on 2MB diskettes.

- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 3 When "EDD000" appears on the terminal, enter
EDD to begin the data dump
- 4 When "DATADUMP COMPLETE" and "DATABASE BACKUP
COMPLETE" appear on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 5 Evaluate the number of call registers and telephone buffers that are configured for the system. Refer to *Meridian 1 capacity engineering* (553-3001-149).

The CP card upgrade is complete.

Upgrading to a new CP card in an Option 51C.

CAUTION

Installing the NT9D19, NT5D10 or NT5D03CP card in the Option 51C will require system downtime. Schedule for this when planning the system upgrade.

Power to the entire column must be shut off to perform this upgrade. This will cause loss of service to the whole telephone system. Plan the upgrade for a time when the impact to the telephone users will be minimal.

Installing an NT9D19, NT5D10 or NT5D03 CP card in an Option 51C system consists of:

- installing a new CP card in the Core module
- upgrading the system software and CP ROMs

Performing a data dump

Before starting the upgrade procedure, make a backup copy of the customer database using the data dump routine:

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program
- 3 When "EDD000" appears on the terminal, enter **EDD** to begin the data dump

- 4 When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appear on the terminal, enter
**** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Installing the new CP card and system software

At this time you will install the new CP card and system software if it is not already installed on the hard drive.

- 1 Connect a terminal to the CPSI port in the Core module to J25 of the I/O panel at the back of the core. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.
 - 7 data bits
 - 1 stop bit
 - Space parity
 - Full duplex
 - XON protocol
- 2 Set the NORM/MAINT switch to MAINT, disengage the lock latches and remove the CP card from the Core module.
- 3 Insert the Install diskette that corresponds to the CP card you will be installing into the IODU/C.

- 4 Install the CD-ROM disk into the CD-ROM drive. To install the CD-ROM:
 - press the button on the CD-ROM drive to open the CD-ROM disk holder
 - place the CD-ROM disk into the holder with the disk label showing
 - press the button again to close the CD-ROM disk holder (don't push the holder in by hand)
- 5 Verify that the MAINT/NORM switch on the new NT9D19, NT5D10 or NT5D03 CP card is set to NORM.
- 6 Verify that the ENB/DIS switch on the CNI card is set to ENB.
- 7 Insert the new CP card in the same slot in the Core module and secure the lock latches.

The system will automatically load the software install program.

- 8 When the NT Logo Screen appears on the terminal, the Software Installation Tool has loaded. Press **<CR>** to go to the Install Main Menu.
- 9 Set the system date and time. When prompted to enter the time and date, enter it in the following format. A space or dash can be used to separate the items.

dd mm yyyy
hh mm ss
or
dd-mm-yyyy
hh-mm-ss

- 10 At the Main menu select **<u>** to go to the Install menu.
- 11 Insert the Keycode diskette when prompted and select **<a>** to continue with the keycode validation.

Once the keycode is validated against the Security Device, the Install menu is displayed.

- 12 When the Install menu appears, select the following options in sequence when you are prompted to do so:

<a> to install software, CP-BOOT ROM and IOP-ROM
<y> to start installation
<a> to continue with the upgrade

- 13 Following the software installation, install the CP-BOOT and IOP-ROMs. From the menu select the following:

<a> to continue with ROM upgrade
<a> to continue with ROM upgrade (CP-BOOT ROM)
<y> to start installation
<a> to continue with ROM upgrade (IOP-ROM)

- 14 Remove the diskette from the IODU/C.

- 15 Select the following options to quit and reload the system:

<q> to quit
<yes> to confirm quit
<a> to reboot the system

The system will automatically perform a sysload and system initialization during which several messages will appear on the system terminal. Wait until initialization has finished (INI messages are no longer displayed on the system terminal) before continuing.

Note: SYS4695 is not an error message. This message is cleared when you perform a data dump.

Note: If you are converting from a software release prior to release 24, the following message appears on the system terminal:

DATA CONVERSION

X11 RELEASE XX.xx TO RELEASE YY.yy

- 16 Verify that the "DONE" message appears on the system terminal.

Note: The SYSTEM INI message may take 70 seconds or more to appear.

Completing the upgrade

To complete the CP card upgrade, verify CPU and CNI status.

- 1 Verify CPU and CNI functionality:
LD 135 to load the overlay
STAT CPU to check the CPU status
STAT CNI to verify CNI functionality
******** to exit the program

Backup the customer database to 2MB diskettes:

- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 3 When "EDD000" appears on the terminal, enter
EDD to begin the data dump
- 4 When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appear on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 5 Evaluate the number of call registers and telephone buffers that are configured for the system. Refer to *Meridian 1 capacity engineering* (553-3001-149).

The CP card upgrade is complete.

Procedure 14: CD-ROM Software Installation Tool

This chapter details the screen displays and options of the CD-ROM Software Installation Tool (hereafter referred to as “Software Installation Tool”) that is compatible on option 51C, 61C, 81, and 81C systems equipped with the NT5D61 Input/Output Disk Unit with CD-ROM (IODU/C).

This tool is based on the existing Software Installation Tool, but has notable differences in menus as well as new functionality to support installation of software from CD-ROM, copying of system software from Core to Core, copying of database from Core to Core, and Keycode installation.

The IODU/C card no longer uses a Security Cartridge, but instead uses both a Security Device and an electronic **keycode** file. This keycode file is stored on a 2MB diskette and must be inserted into the IODU/C floppy drive and authenticated each time the Software Installation Tool is loaded and the Install Menu is accessed.

On systems equipped with an IODU/C, the database is stored on 2MB diskettes, not 4MB diskettes. A Database Transfer Utility diskette, specific to Call Processor type, is available to convert a 4MB database to a 2MB database. Refer to *NT5D61 IODU/C Reference guide* (P0872703) or *Meridian 1 hardware replacement* (553-3001-520) for procedures on replacing CMDU or IOP/CMDU cards with IODU/C.

The Tools Menu has new options for finding the CD-ROM status (option <g>), printing the Keycode (option <h>), printing information about the Security Device (option <i>), checking the customer-specific CD-ROM data (<j>), manually creating a Keycode diskette (<k>), and archiving the database (<s>).

Do not turn off the system during the installation process. If you need to quit the installation process, do so from within the Software Installation Tool before powering off the system.

Read the entire procedure before attempting to perform an installation.

Before the Software Installation Tool is activated, verify that the system is in split mode (not applicable for option 51C) and that a terminal is connected to CPSI port J25 on the I/O panel (in the inactive Core for dual CPU systems). Option 51C systems will be taken out of service.

To activate the Software Installation Tool, insert the Install diskette specific to your Call Processor type and the CD-ROM containing system software (if you will be installing that component). Press the MAN RST button on the CP card in the same Core.

The IODU/C Software Installation Tool requires the following items:

- 2MB diskettes (used to store, backup, and restore the database)
- an Install diskette specific to the system's Call Processor card
- a Keycode diskette
- a CD-ROM containing system software

Note: If you will be installing system software from CD-ROM (options <a>, , or <c> from the Install Menu), then insert the CD into the CD-ROM drive before loading the Software Installation Tool.

CAUTION

The screens shown in this procedure are examples. They are not intended to exactly represent the displays that will appear for your system, nor do the choices entered represent those you should necessarily choose. Be sure to watch the terminal display, and follow the on-screen instructions.

Pay close attention to the menus when they appear; they display the options available at any given stage.

Status Summary Charts

Status Summary Charts are displayed for the purpose of informing the user about what items will be installed or have been installed. This example is shown when option (all components) is chosen from the Install Menu.

Note: Your screen may differ from the below example.

INSTALLATION STATUS SUMMARY

Option	Choice	Status	Comment
SW: CD to disk	yes		from xxxx to xxxx
SW: disk to ROM	yes		
Database	yes		
CP-BOOTROM	yes		
IOP-ROM	yes		

Please enter:

<CR> -> <y> - Yes, start Installation.

<n> - No, stop Installation. Return to the Main Menu.

Enter Choice> y

553-7731

The possible values and meanings for each column are defined below.

— Choice

- **yes** indicates the item will be installed
- **no** indicates the item was not selected, and will not be updated.

— Status

- **quit** indicates the quit option was used, and the process was exited.
- **ok** indicates the choice was installed successfully.
- **error** indicates the installation was not successful. A system message is given when the Software Installation Tool encounters a problem. Follow the actions required by the message.
- **ignore** applies to the CP ROM and IOP-ROM upgrade only. This appears when the process was exited when asked to replace a release and issue with the same release and issue.
- **blank** indicates the status is not yet determined if Choice = Yes. If Choice = No, the field remains blank.

— Comment

- **from rel <number> to rel <number>** gives the Source and Target release and issue numbers.

Messages

When the Software Installation Tool encounters a problem, a system message appears on the terminal display. These messages fall into two categories: warning and non-warning.

Warning messages are not critical errors. The Software Installation Tool proceeds with the installation following the appearance of this message. Refer to *X11 input/output guide* for details regarding these messages.

Non-warning messages appear when a critical problem is encountered. The Software Installation Tool stops the process, and an action is recommended. When the action is complete, the Software Installation Tool can be restarted. In some cases, the tool allows you to restart by pressing the carriage return <CR>.

Installation messages (INST) are defined fully in *X11 input/output guide*.
Refer to that document for more details.

Introductory Screen

The first screen that appears after loading the NT5D61 Software Installation Tool is the NT Logo Screen.

This screen is displayed after the user presses <CR> from the NT Logo Screen. From this screen, the user may select option <u> to go to the Install Menu, or <t> to go to the Tools Menu. Alternately, option <q> to quit is available at this screen.

Nortel Meridian - 1 Software/Database/PEROM CDROM INSTALL Tool (x11)

=====

MAIN MENU

The Software Installation Tool will install or upgrade Meridian-1 System Software, Database and the PE-ROM (both CP and IOP ROM). You will be prompted throughout the installation and given the opportunity to quit at any time.

Please enter:

<CR>--> <u> - To Install menu.

<t> - To Tools menu.

<q> - Quit.

Enter choice > **u**

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Install Menu

Note: A Keycode diskette is required before accessing the Install Menu.

Before the Install Menu screen is displayed, an intermediary screen shown below prompts the user to insert their Keycode diskette for validation against the Security Device.

Nortel Meridian - 1 Software/Database/PEROM CDROM INSTALL Tool (x11)

=====

Please insert the diskette with the keycode file into the floppy drive.

Please enter:

<CR>--> <a> - Continue with the keycode validation
 (the keycode diskette is in the floppy drive).
<q> - Quit.

Enter Choice > a

553-7729

Following successful Keycode validation, the Install Menu screen is displayed, as shown below.

Note: If the Software Installation Tool is loaded on a Core equipped with an NT5D61BA IODU/C (which lacks a CD-ROM drive), options <a>, , and <c> will not appear.

Nortel Meridian - 1 Software/Database/PEROM CDROM INSTALL Tool (x11)

INSTALL MENU

The Software Installation Tool will install or upgrade Meridian-1 System Software, Database and the PE-ROM (both CP and IOP ROM). You will be prompted throughout the installation and given the opportunity to quit at any time.

Please enter:

- <CR>--> <a> - To install Software, CP-BOOTROM, IOP-ROM.
 - To install Software, Database, CP-BOOTROM, IOP-ROM.
 <c> - To install Software only.
 <d> - To install Database only.
 <e> - To install CP-BOOTROM only.
 <f> - To install IOP-ROM only.
 <g> - To reinstall CP-Software.
 <o> - To copy System Software from the other Core.
 <t> - To go to the Tools menu.
 <k> - To install Keycode only.
 For Feature Expansion, use OVL143.
 <q> - Quit.

Enter Choice >

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Each option from the Install Menu is described in the following pages.

Installing Software, CP-BOOTROM, and IOP-ROM

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

This option is selected for the sequential installation of software, CP-BOOTROM, and IOP-ROM. This option differs from option in that the database is not installed. Use option <a> when going to a later X11 release or for a software upissue.

Installing Software, Database, CP-BOOTROM, and IOP-ROM

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

This option is selected when you wish to sequentially install all components - software, database, CP-BOOTROM, and IOP-ROM.

Option is used during the upgrade procedures from NT5D20 IOP/CMDU, NT6D63 IOP and NT6D64 CMDU, NT9D33 SMDU, NTND16 FDU, NT8D69 MDU, and NTND16 MDU cards to NT5D61 IODU/C cards.

Installing Software only

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

This option is selected when you wish to install system software from the CD-ROM to the hard drive. When selecting option <c>, IOP-ROM and CP-BOOTROM are not installed.

Installing Database only

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

The Database Menu of the Software Installation Tool is accessed by the <d> option on the Install Menu. The following options are available for installing a database:

Nortel Meridian - 1 Software/Database/PEROM CDROM INSTALL Tool (x11)

=====

You will now perform the database installation.

Note: If you are installing the Database from a floppy disk, please insert the correct disk now.

Please enter:

<CR>--> <a> - Install CUSTOMER Database

(the customer database diskette must be in the Core 1 disk drive).

 - Install DEFAULT Database

(the installation CDROM must be in the Core 1 disk drive).

<d> - Copy Database from the redundant disk.

<e> - Check the Database that exists on the hard disk.

<q> - Quit.

Enter Choice > a

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- Option <a> is to install the backup customer database from one or more 2MB diskettes.
- Option allows installation from the CD-ROM containing the default database. This option is used on new systems which have no existing database.
- Option <d> copies the existing database from the redundant Core. This option is used when the database has already been installed on one Core. This option is used when upgrading from IOP/CMDU to IODU/C cards.

- Option <e> displays the version and issue of the current database residing on the Core. If database files are missing, error messages will be printed.

CAUTION

Before upgrading the system database, be sure a backup of the previous (source) database is on hand. Should any problems arise, it may be necessary to return to the previous database.

Install CP-BOOTROM

Note: Installation of CP-BOOTROM is available on systems with NT9D19, NT5D10 or NT5D03 Call Processor cards only. For systems with the NT6D66 Call Processor card, CP-ROM is installed instead of CP-BOOTROM. See page 334 for installing CP-ROM on a system equipped with an NT6D66.

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

Option <e> is for installing new CP-BOOTROM. This option is used to install CP-BOOTROM while on Core 0 in a software upgrade, when software has already been installed using options <a> or on Core 1, and software has already been copied onto Core 0 using option <o>.

The next screen displayed after selecting option <e> will show the version of CP-BOOTROM being replaced and version being installed, and the card slot where the CP-BOOTROM is being installed. The user is prompted to select <a> to continue with the CP-BOOTROM upgrade.

Install CP-ROM (NT6D66 CP cards only)

Note: Installation of CP-ROM is available on systems with NT6D66 Call Processor cards only. For systems with the NT9D19, NT5D10 or NT5D03 Call Processor cards, CP-BOOTROM is installed instead of CP-ROM. See page 334 for installing CP-ROM on a system equipped with an NT6D66.

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

Option <e> is for installing new CP-ROM. This option is used to install CP-ROM while on Core 0 in a software upgrade, when software has already been installed using options <a> or on Core 1, and software has already been copied onto Core 0 using option <o>.

The next screen displayed after selecting option <e> will prompt the user to choose whether to install the CP-ROM from the hard disk (option <a>), or from CD-ROM (option). If software has just been installed successfully, then option <a> should be used. However, if software was not installed, select option to install from CD-ROM.

Install IOP-ROM

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

Option <f> is for installing new IOP-ROM. This option is used to install IOP-ROM while on Core 0 in a software upgrade, when software has already been installed using options <a> or on Core 1, and software has already been copied onto Core 0 using option <o>, and CP-BOOTROM has been installed using option <e>.

The next screen displayed after selecting option <f> will show the version of IOP-ROM being replaced and version being installed, and the card slot where the IOP-ROM is being installed. The user is prompted to select <a> to continue with the IOP-ROM upgrade.

Reinstalling CP-Software

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

This option is used if a flash programming error occurs during software installation through options <a>, , or <c>. Option <g>, which assumes that software files have already been installed on the hard disk, copies these files from the hard disk to the Flash EEPROM.

To copy system software from the other Core

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

Option <o> is used during a software upgrade when software has already been installed on Core 1, and the Software Installation Tool has been loaded on Core 0.

Note: This option does not perform the installation of CP-BOOTROM (option <e>) or IOP-ROM (option <f>).

To go to the Tools Menu

Option <t> displays the Tools Menu and its options, which are described beginning on page 338.

To Install Keycode only

Option <k> is used when you wish to replace an existing Keycode.

To quit

Note: For dual-CPU systems, verify that the system is operating in split mode before activating the Software Installation Tool.

Throughout the installation process, the option to quit is always available. Quitting with the Software Installation Tool quit commands is preferable to pressing the MAN RST button on the CP card, since quitting from the tool will erase unneeded temporary files.

When you are done using the NT5D61 Software Install Tool remove the diskette from the IODU/C and select option <q> to quit from the Main Menu. The terminal displays a confirmation to quit. Pressing <y> confirms the quit.

```

Nortel Meridian - 1 Software/Database/PEROM CDROM INSTALL Tool (x11)
=====

You selected to Quit. Please confirm.

Please enter:
<CR>--> <y> - Yes, Quit.
        <n> - No, DO NOT Quit.

Enter choice > y
553-7751
  
```

The final screen displayed before quitting reminds the user that the Install diskette should be removed from the IODU/C floppy drive before pressing <a> to reboot the system.

```

Nortel Meridian - 1 Software/Database/PEROM CDROM INSTALL Tool (x11)
=====

You have selected to Quit the Software Installation Tool
You may reboot the system or return to the Main Menu.
Before rebooting the system, remove Install diskette from the floppy drive.

-----
DO NOT REBOOT USING BUTTON!!
-----

Please enter:
<a> - Reboot the system.
<CR>--> <m> - Return to the Main menu.

Enter Choice > a
553-7752
  
```

Tools Menu

To load the Software Installation Tool which contains the Tools Menu, insert the Install diskette which is compatible with your Call Processor card. Press the MAN RST button on the CP card to load the tool.

The first screen that appears after loading the NT5D61 Software Installation Tool is the NT Logo Screen.

This screen is displayed after the user presses <CR> from the NT Logo Screen. From this screen, selecting option <t> brings the user to the Tools Menu.

Nortel Meridian - 1 Software/Database/PEROM CDROM INSTALL Tool (x11) =====	
<p style="text-align: center;">M A I N M E N U</p>	
The Software Installation Tool will install or upgrade Meridian-1 System Software, Database and the PE-ROM (both CP and IOP ROM). You will be prompted throughout the installation and given the opportunity to quit at any time.	
Please enter:	
<CR>-->	<u> - To Install menu.
	<t> - To Tools menu.
	<q> - Quit.
Enter choice > t	
<p style="text-align: right;">553-7797</p>	

Note: Insertion of the Keycode diskette is not required for accessing the Tools Menu.

The Tools Menu has new options for finding the CD-ROM status (option <g>), printing the Keycode (option <h>), printing information about the Security Device (option <i>), checking the customer-specific CD-ROM data (<j>), manually creating a Keycode diskette (<k>), and archiving the database (<s>).

The Tools Menu is displayed below.

```

Nortel Meridian - 1 Software/Database/PEROM CDROM INSTALL Tool (x11)
=====
                        T O O L S   M E N U

This is the Tools Menu for Install. You can select the tool that
is appropriate. Please select one of the options below.

Please enter:
<CR>--> <a> - To set the system date and time.
        <b> - To partition the hard disk.
        <c> - To display the partition size of hard disk.
        <d> - To regenerate PDT Password.
        <g> - To print CDROM content.
        <h> - To print Keycode content.
        <i> - To print Security Device content.
        <j> - To Check the customer specific part of CDROM.
        <k> - To manually create Keycode floppy diskette.
        <r> - To install Keycode only.
        <s> - To archive existing database.
        <z> - To check MDU connection.
        <m> - To return to the Main Menu

Enter choice >
    
```

553-7796

Each option from the Tools Menu is described in the following pages.

Setting the system date and time

This option is used to change the system date and time for the system's internal clock. The correct date and time will ensure that files are time-stamped accurately.

Nortel Meridian - 1 Software/Database/PEROM CDROM INSTALL Tool (x11)

You have selected the option to set the system date and time.
This will change the internal clock of your system to a new date and time.

The system date and time are also used by Install to time-stamp the new files created.

Pressing the carriage return at the prompt below will leave the system date or time unchanged.

Please enter the new date or time.

Current date is: Tuesday 04-29-1997
Enter new date (dd mm yyyy) ? 30 4 1997
Date is set to: Wednesday 04-30-1997

Current time is: 15:52:00
Enter new time (hh mm ss) ? 15 05 45
Time is set to: 15 05 45

System Date and Time now is:
Wednesday 04-30-1997, 15:05:46

553-7743

Partitioning the hard disk

Note: Option requires a password, and should only be performed by Northern Telecom support personnel.

WARNING

Partitioning a disk erases all files from it.

Displaying the hard disk partition size

Option <c> displays the partition sizes of the hard disk. The manufacturer and model number of the hard disk are also displayed.

IOU 0

Hard Disk from: MAXTOR:7120SCS, Size:124MB,Sectors:248502

Unprotected Part Size:30MB, Sectors: 60000

Spare Part Size:30MB, Sectors: 60000

CardId Part Size:1MB, Sectors: 2000

Protected Part Size:60MB, Sectors: 120000

553-7742

Regenerate the PDT password

Note: Option <d> requires a password, and should only be performed by Northern Telecom support personnel.

To install CP-software at a specified slot

Note: Option <e> requires a password, and should only be performed by Northern Telecom support personnel.

To print the CD-ROM content

Option <g> is used to find whether a CD-ROM exists on each IOU/C, and whether its sectors are readable. After selecting <g>, three options are available:

- **Fast** readability test, which takes about 17 seconds for each CD-ROM and reads 1/30th of the CD-ROM sectors.
- **Extensive** readability test, which takes about 3 minutes for each CD-ROM and reads 1/4th of the CD-ROM sectors.
- **Total** readability test, which takes about 6 minutes for each CD-ROM and reads all sectors of the CD-ROMs.

Note: The failure of a CD-ROM drive to read a known good CD-ROM may indicate a problem with the CD-ROM drive.

To print the Keycode content

Option <h> is used when you wish to display the information contained in the current Keycode. The information displayed includes machine type, software version, ISM limits, and which feature packages are enabled.

```

System Serial Number      : 46379
Software Version          : 1811
System Type               : Option 61C
Call Processor            : CP68030
Release                   : 23
Issue                     : 30G
NTI Order Number          : 000000000000
NT SDID - 1               : 00000000
NT SDID - 2               : 00000000
Date and Time of Manufacture : 06/03/1998 - 14:53:38
  
```

Note: () indicates that information is not available

ISM Limits:

```

Loop Limit                : 32
Sys TNs Limit             : 32767
ACD Agt Limit             : 32767
ACD DNs Limit             : 24000
AST Limit                 : 32767
DSL Limit                 : 100
LTID Limit                : 100
DCH Limit                 : 64
AML Limit                 : 16
MPH DSL Limit             : 100
RAN CON Limit             : 32767
RAN RTE Limit             : 512
MUS CON Limit             : 1000
Brand Index               : 1
  
```

Options Packages:

```

0-2 4-5 7-25 28-29 232-55 57-65
67 70-77 79-81 84 86 88-93
95 98-105 107-109 111 113-121 125
127 129 132-134 136 139-140 145-151
153-155 157-160 162 164 170 172-175
178-181 186 191-192 196 202-212 214-216
218-219 222-225 227-229 231 233-235 240
242-243 245-248 250-251 253-256 258-259 262-263
286 290-293 296-297 301-303 305-310 313-316
321 323-324 327-335
  
```

553-7745

To print the Security Device content

Option <i> shows specific information about the Security Device, such as Serial Number. This enables the user to find information about the Security Device without removing the NT5D61 IODU/C card.

Engineering Code (Side x)	:NT5D61AA	
Card Serial Number	:06NNTM1831RRC3 IOP	
NT SDID	:20000080	
Security Device Type	:NT_TCH	
System Serial Number	:46379	553-7746

To check the customer-specific part of the CD-ROM

Option <j> is used to check the readability of the Keycode-specified system software on the CD-ROM drive. Once all files have been checked successfully, the message "Checking directory /cdx/xxxx_DMR.Nxx ended successfully" is displayed to indicate completion.

To manually create a Keycode diskette

Option <k> is used to manually type in a keycode and save it to a 2MB diskette. Upon selecting this option, you may enter the characters into 21 Keycode entry lines of 16 characters each, which will compose the Keycode file to be saved on a 2MB diskette in the floppy drive.

Characters may be entered on the Keycode entry lines in one of two ways:

- manually entering each 16-character line followed by a <CR> or
- "pasting" each individual 16-character line, then pressing <CR> (available on a PC running Windows 95 ®, using the Copy command (Control-C) to copy a line of characters from a keycode file, positioning the cursor on the current Keycode entry line, and using the Paste command (Control-V) to paste the line).

If a line is entered which does not have 16 characters, a message will be displayed informing the user to reenter the line correctly.

To archive the existing database

This option is one of the methods (the ABKO and BKO commands from overlay 143 are other methods) that is available to backup the customer database to 2MB diskettes. The size of the backup files and the estimated number of 2MB diskettes required to store the database will be displayed.

To go back to the Main Menu

Option <m> is selected to return the user from the Tools Menu to the Main Menu, where the user may select to quit (<q>) or go to the Install Menu (<u>).

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